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MoorMan's Hog Book

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Moor Man's
HOG BOOK

A Treatise on the

Origin

Care and Treatment

AND

Diseases

of Swine

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INTRODUCTION

This book is for practical, progressive hog raisers. It covers the entire field, giving the facts in a nutshell.

For our subject matter we have drawn from two sources.

FIRST, The recognized scientific authorities, including the U. S. Department of Agriculture, the different State Experiment Stations, and the veterinary and agricultural colleges.

SECOND, Our own more than thirty-five years' business experience, during which time we have been in constant touch with the best hog men of the entire country.

We trust you will find this book of peculiar merit and great practical value.

In fact, we believe it stands at the head of its class.

PART ONE

THE ORIGIN AND EVOLUTION OF THE HOG

Through many years of study and research scientists have been able to trace the hog of today back through its various stages of development to the animal called Elothere, or Giant Pig. Two drawings of this animal are to be found on the next page.

Skeletons of these animals were found petrified in stone and under other conditions favorable for petrification. They inhabited the earth before man. Scientists who know the amount of flesh that should be on a bone of a certain size have made pictures from skeletons now in museums.

TO be healthy, all hogs' bowels must move freely and the droppings should mash out on the ground when it falls.

ELOTHERE, OR GIANT PIG, OF THE SOUTH DAKOTA LAKE.

This animal is supposed to have developed from the Giant Pig pictured on the preceding page. This animal undoubtedly lived thousands of years after the time of the Giant Pig.

Notice this animal somewhat resembles the wild boar pictured on the next page.

The large volume of business done not only enables us to be certain of the highest quality but also of the most reasonable price.

This is a drawing of the earliest known wild boar which very strikingly resembles the wild hog of today.

The picture of the bristles is an exact reproduction of bristles that are now in our possession. They were plucked from a live wild boar a few years ago while on exhibition at one of our state fairs.

"A balanced ration may furnish all the necessary feed nutrients, yet the system of the hog craves mineral matter. The mineral matter is not under control, and in order to make sure that the hogs have an abundant supply, free access should be given to a mineral mixture."

The above was taken from Farmer's Bulletin 874, revised and printed in April 1920. U. S. Department of Agriculture, Washington, D. C.

A. T. Kinsley, M. Sc., D. V. S., is a recognized authority on swine diseases and is one of the foremost research workers in the United States. He states on page 21 in his book entitled "Swine Diseases" that he found the following in one hog's stomach:

40 nails.
15 staples.
4 screws.
4 nuts.
9 pebbles.
1 snap.
2 bolts.
1 brass pin.
1 piece porcelain.
1 No. 10 shotgun shell.
2 buggy-top tacks.
5 pieces of iron.
1 metal picture frame.
6 pieces of zinc.
8 pieces of wire.
1 piece of glass.
1 piece of brass.

This undoubtedly shows a depraved appetite and surely does indicate the hog was greatly in need of mineral matter.

A good mineral mixture should be kept before hogs constantly. It is absolutely necessary in order to make sure they get the required amount of mineral matter to insure the best thrifty condition.

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Fold-out Placeholder

This fold-out is being digitized, and will be inserted at future date.

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DEVELOPMENT OF OUR HOG OF TODAY

The domestic hog of today has been developed from two earlier types.

FIRST, the wild boar, or wild hog of Northern Europe and Northern Asia where it may still be found. It is a very rugged, self-reliant animal, having great heart and lung capacity. The male has large tusks and heavy shoulders and neck, making him a dangerous animal when attacked. His shoulders are protected by heavy shields. These wild hogs eat almost everything including roots, grass, nuts, fish, snakes, etc. They mature slowly and often live to be twenty-five or thirty years old.

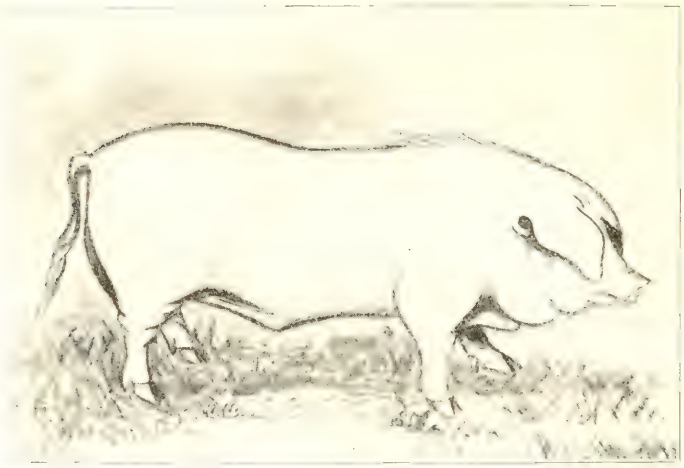
SECOND, the other type whose blood enters into our modern breeds was from the warmer portions of the old world. It is smaller than the wild hog of the north, matures sooner and is of finer quality.

Most of the breeds which we know here were developed from the old English hog. (See bottom picture on page 12). Later, our vessels brought hogs from other countries also, which were crossed with the types already here and from these came several of our present day breeds, a brief sketch of which may be of interest.

POLAND CHINA

The Poland China breed was developed in Butler and Warren Counties, Ohio, between 1830 and 1850. It is a blending of the best types of that early day, in-

It is very hard for hog's bowels to be kept too loose. It should always mash out on the ground when it falls.



OLD CHINA HOG

OLD ENGLISH HOG

cluding the Bedfordshire, China, Berkshire, Byfield, Irish Grazer, Russian, Siamese, Essex and Poland.

The Bedfordshire was a good size hog and a good traveler, the latter being a valuable trait in those days of remoteness from market and before hogs were hauled to market. In color it was sandy, spotted or striped. It had large, flopping ears and matured at from three to four years of age.

The China Hog, although sometimes spotted or sandy was usually white. It is said to have originated in Pennsylvania and was brought by the Quakers to the Miami Valley in 1816. It was a large hog of fine quality originally developed from Chinese Swine. (See top picture on page 12.)

The Berkshire was introduced into the Miami Valley between 1835 and 1840 and contributed largely to the formation of the Poland China.

The Byfield was a large, coarsely built hog, which originated in Eastern Massachusetts. The color was solid white.

The Irish Grazer was a blend of the Irish Pig and the Yorkshire, Berkshire and some other minor breeds. These hogs were mostly white with occasionally a black spot. They had a fine coat, upright ears and were early-maturing.

The Russian Hog was also white. In form it was large, coarse and rangy. The back was narrow and "shed-roofed." They were prolific, bearing nine or ten pigs at a litter.

The Sliamese was a sway-back black hog with occasional white markings.

The Essex was solid black and produced pork of the finest quality.

The Poland breed seems to have gotten its name

from the fact that the man who developed it was from Poland originally, although at the time he was a farmer of Butler County, Ohio. He claimed to have imported his original stock from England. The Poland was a large, vigorous, early-maturing hog which somewhat resembled the Berkshire. In color they were either red or bright sandy.

Eventually the blending of all these types and breeds produced a distinct type which was big and strong and matured early. It was spotted in color with drooping ears and was known under several names, such as the Magie Hog, the Miama Valley, the Warren County, Butler County, Great Western, Shaker, China, etc., etc.

The Essex and the Berkshire with the upright ears were again used in crosses. This fixed the fancy color of black with six white points and seems to be the last instance of the infusion of outside blood in the breed.

Thus it is seen that not any one man, but the breeders and farmers in general of the Miama Valley in Ohio developed this very useful breed. The packers of Cincinnati, which was then the center of the pork industry, also took great interest in the development of better hogs. They even bought and distributed free to the farmers many high-class boars of the different types.

In 1870 a convention of hog men met at Springfield, Illinois, and agreed upon the name "Poland China," to which many objected. But in 1872 the convention

> The hog of today in any and all parts of the country is living a wholly unnatural life as compared to that of the original hog.

POLAND CHINA BOAR

DUROC JERSEY BOAR

which met at Indianapolis ratified the name and ended the controversy.

At present there are three types of Poland China hogs. The heavy type, the light or small type, and the spotted type.

One class of breeders has endeavored to produce quality, early maturity and smoothness of form. There was a tendency to follow this to an extreme with the result that the type lost somewhat in size and prolificacy. This strain is a fancy type with broad back, deep, full sides, smooth shoulders, heavy, plump hams, short legs, and upright pasterns. The bone is fine and the quality of the flesh good. The neck is short, the snout medium in length, the head neat with fancy ears which are two-thirds upright and one-third drooping.

Many breeders refuse to follow the showyard standard and are breeding for size, growthiness, and prolificacy. The large boned type is longer in the body and has longer legs and heavier ears.

The Spotted Poland China seems to be growing in favor. As the name indicates it has gone back to the color of the early type. It is similar to the big boned type except in color.

The Poland China is a typical American breed and one of the best for crossing with common stock to build up a herd.

DUROC JERSEY.

This breed was developed in America from several types of red swine which were brought here from differ-

> The hog stands alone as a money maker if handled intelligently.

ent parts of the old world. It is said that one strain of red hogs was brought to New Jersey from Africa by a slave trading vessel over 200 years ago, and eventually New Jersey produced the Jersey Red, long in body, slow to mature, but capable of weighing 1,300 lbs at two years of age.

About 1877 the breeders of red hogs in New York agreed upon a standard of excellence and chose the name Duroc for the type. The Durocs were of medium size, very compact, and of a cherry red color. About 1883 the breeders of these two types, Jersey Red and Duroc united and called their breed the Duroc Jersey.

They are considered rather coarse, but are good feeders and grazers and very prolific. They cross well with Poland China, Berkshire or Chester White. The sows make excellent mothers.

BERKSHIRE.

The Berkshire is one of the oldest distinct breeds. It originated in Berkshire, England, more than 100 years ago, but the best strains are now produced in America.

The Berkshire is black and has six white points, viz. on feet, face and tip of tail. The face is short and dished and the ears are erect or slightly turned forward. The back is straight and of medium breadth, with sides of considerable length. The shoulder is of medium thickness and breadth and the ham is deep and thick, extending well up to the body and down to the hock. The legs are short, straight and strong and set well apart. This breed seems to thrive almost anywhere, as it is being raised in the south and southwest as well as in the northern states. It matures early and is a good grazer.

RED BERKSHIRE BOAR

FIGHT CONSTIPATION

When the waste matter passes through your hogs dry and firm it is then a certainty that hundreds of pounds of good food is going to waste.

The poison given off from waste matter which stays in the hog too long is one of the most injurious poisons taken into his blood.

FIGHT CONSTIPATION

THE HAMPSHIRE OR THIN RIND HOG.

This breed may be traced back to the old English hog. It was known in the United States at one time as the McKay Hog and the Belted Breed. They were black in color with a white belt running around the front part of the body, including the shoulders and front legs. This was a distinct type over a hundred years ago but was crossed with other breeds to such an extent that by the beginning of our Civil war it was practically impossible to find one of pure blood. It was developed again, however, in its original form and was named the Thin Rind, probably by the packers because the skin was thin, soft and mellow. The American Thin Rind Association was incorporated in 1893.

Characteristics of the Hampshire or Thin Rind Hog are as follows: The color is black with a white band, four to twelve inches wide, running around the body and including the fore legs. It has a small head, medium ears, and light jowls with a back of medium width. The hams are not as full as the hams of some of the heavier breeds and the legs are well set apart. This breed is sometimes considered as a medium between the lard hog and the bacon hog with a greater tendency to the bacon type. It is a good grazer and is quite prolific. The meat is considered good.

CHESTER WHITE.

The Chester White originated in Chester County, Penn., nearly 100 years ago. Several strains including the English China, the Lincolnshire Curly White and

Sunshine and more sunshine for all young pigs.

the slow maturing white hog the Quakers brought to Chester County about 1812, contributed to this popular breed whose chief characteristics are as follows:

The color is white with an occasional dark spot on the skin. In size they vary from medium to large. This breed belongs strictly to the fat or lard type, as it produces a relatively large amount of fat to lean. The face is straight, and the nose is usually long and narrow, the ears drooped forward. The body is not very long but is compact and smooth throughout. The hams are heavy, shoulders smooth, and the back broad. The Chester White is considered a good feeder and is one of the most prolific of the lard type. Like other white skinned hogs, they are liable to sun scald in hot climates.

YORKSHIRE.

Practically every English or American breed of today has Yorkshire blood in it. This is one of the breeds originated in England by crossing the old English hog with the Chinese.

They are white in color and of three distinct varieties, viz. the large Yorkshire, the small Yorkshire, and Middle or Medium Yorkshire, which is a cross between the other two. The large Yorkshire belongs to the bacon type, the small is a lard hog and the Middle is between the two.

THE TAMWORTH.

The Tamworth is a direct descendant of the European wild boar. About 1813, Sir Robert Peel, who was then Secretary to Ireland, brought specimens to Tamworth, England, from Ireland, where it had existed for a long time. It has been developed by selective breeding and good care.

Its blood has been kept pure for a longer time perhaps than that of any other breed. It has the desirable

TWO HAMPSHIRE BOARS

CHESTER WHITE BOAR

characteristics of its wild ancestors—a rugged constitution with vital organs well-developed, active and thrifty. It is an unusually large hog, too. It is reported that a Tamworth boar in England was killed some time ago which weighed 1607 alive and dressed 1,330 lbs.

The Tamworth is a model bacon type, having long, deep body, strong, even back, light shoulders and broad hams. The legs, head and neck are also long and coarse as compared with some of the lard types. The color of the Tamworth is red. They are good rustlers, very prolific, and the meat is of the highest quality.

RED BERKSHIRE.

Kentucky has the honor of originating, or at least of preserving intact, this interesting breed. The Red Berkshire has been bred pure for 75 years although the Kentucky Red Berkshire Association, (Stanford, Kentucky) was not organized until 1913.

It is said that these red hogs attracted attention about 100 years ago by their sturdiness on the long drives of that time and by their fattening qualities.

The standard is as follows: A jowl that is light, neat, firm and tapering from the neck to a point, with the face nearly straight, medium width between the eyes and a short neck tapering from the shoulder to the head; shoulders deep, full and well in line with the back, sides straight from shoulder to ham with ribs well sprung at top and bottom; belly straight and full, devoid of grossness; flank full and running nearly on a line with the sides; back straight or slightly arched with medium breadth and with nearly uniform thickness from shoulders to hams and full at the loins with a chest deep, large and roomy; girth extending down even with line of belly and rump; the latter slightly

rounded from loin to root of tail; ears of medium length, thin, straight up or slightly forward; narrow cheeks, not full; legs of medium length set squarely under body; short pasterns; short toes and firm; color from deep red to a pale red; white face, feet and knees are acceptable.

THE CHESHIRE OR JEFFERSON COUNTY SWINE.

The Cheshire or Jefferson County Swine is confined largely to the State of New York. Mr. A. C. Clark originated the breed by crossing Yorkshire boars on sows from Cheshire County, England.

The Cheshire hog is white, has a long cylindrical body, legs of considerable length, ears short, snout medium in length and slender and face slightly dished. Except in color and snout the Cheshire is very much like the Berkshire.

MULEFOOTED.

This breed is so called because, instead of having a divided hoof like other hogs, it has a solid hoof like that of a mule. In other respects it looks very much like the Poland China. It seems to be growing in popularity in some sections. It is claimed to be immune to cholera, but the claim is disputed.

ESSEX.

The Essex is a small, chunky hog having short, broad back, short deep sides, short legs. The typical Essex is a jet black.

OTHER BREEDS.

There are several other breeds which have some excellent points but as yet are not raised as extensively as those mentioned above. Among such minor breeds may be mentioned the English, or Black Suffolk, the American or White Suffolk, the Victorias and the Lanconshire.

YORKSHIRE SOW

TAMWORTH BOAR

PART TWO

CARE AND TREATMENT

Several factors contribute to success in swine husbandry. There are hundreds of little things which in the aggregate are of far more importance than any one big idea or advantageous condition. We will begin by considering the foundation of the herd—the boar and the brood sows.

THE BOAR.

In selecting a boar be sure that he comes from a strain that is hardy and prolific. Find out how many pigs were in the litter of which he was one. See if his sire usually got big litters. As an individual he should have a masculine head and a well-crested neck, shoulders developed according to age, although undue coarseness of shoulder is not desirable. He should definitely show the characteristics of the breed to which he belongs.

The reproductive organs should be well developed and an animal with small, indefinitely placed testicles should not be used.

The three most serious defects to avoid in selecting a boar are: a small rib cage which will prevent the proper development of the vital organs, weak or swayed back, and weak pasterns.

Constipation is one of the hog's greatest enemies
FIGHT IT.

Remember that the most vigorous young are produced from animals that have reached maturity. A boar should not be used for much service until he is at least twelve months old, and should not be used extensively until he is about two years old. Then one service a day is enough and he should be used before being fed. A vigorous male may stand two a day for a short time but this does not bring the best results. Too much service results in pigs being born either weak and puny or dead. Frequently poor bone structure is the result.

To allow the boar to run with the sows is a very bad practice at any time, especially during the breeding season. He should have his own lot or pasture. It is sometimes better for his disposition to let an old sow that is not in heat run with him.

His food should be the kind that will give him strength and vitality but not such as will put on too much fat. For the best results, he should have grazing enough to give him plenty of exercise and sufficient other food to keep him in good condition without becoming fat or too heavy and unwieldy.

A good feed to be used in connection with pasture is two pounds of corn per 100 lbs. of live weight, unless he is growing or in active service, in which case he should have 8% tankage or 12% linseed oil meal in addition to the corn.

If pasture is not available, give him all the alfalfa or cow pea hay he will eat, in addition to a grain ration consisting of six parts corn, three parts shorts and one part tankage.

This grain ration should be fed in amounts varying from two to four pounds per 100 lbs. of live weight according to age and condition of the animal. If neither

pasture nor hay is available, the ration should consist of one-third corn, one-third ground oats and one-third shorts to which add 5% tankage or 10% linseed oil meal by weight. Either skim milk or butter milk combined with corn makes a balanced ration also.

By all means he should be given free access to a mineral mixture. Such a preparation should furnish abundant bone building material, plenty of iron for the blood and body, and sulphur for purifying the blood and furnishing sulphur for the entire body. The use of such a preparation is not so important in any other hog as that of the male hog.

The boar's house and lot should be kept scrupulously clean and he should be treated for lice and mange very frequently. Use a good standard coal tar stock dip for both purposes.

THE BROOD SOW.

No hog raiser can expect good results unless he gives the most careful attention to his brood sows. The facts here given apply to the raising of pigs for either market or breeding purposes.

If you want your brood sow to have good size litters and to be a good milker, see that she comes from a mother having these qualities and that her sire was from such a strain, too, for these things are, to a very large extent, family traits. She should have a long body with a large rib cage well-arched thus giving plenty of room for the proper development of the vital organs. Her back should be full and straight or slightly arched, no sagging just back of the shoulders. She should be wider through the hams than through the shoulders. The general frame should not be loosely constructed

but may be somewhat rangy. Mr. Dawson says in his hog book that the "legs should be straight and set wide apart, hoofs round with short pasterns, and standing firmly on the toes without dew claws touching."

The udder should be well developed, for it matters not how splendid an individual a sow may be, if she cannot furnish plenty of good milk for her young they will suffer. Sows vary as to both quality and quantity of milk just as cows do. Remember that it costs less to keep one sow that raises a litter of eight pigs than two sows that raise four each. As to the age of brood sows, good ones improve for several years in the number and size of pigs to the litter.

From the records of over 6,000 sows, it was found that yearlings averaged 6.65 pigs per litter, and five year old sows averaged 8.4 pigs per litter. At the Wisconsin Experiment Station the one year old sows averaged 7.8 pigs per litter with an average weight per litter of 14.2. Sows from four to five years of age averaged nine pigs to the litter with an average weight per litter of 26 pounds. As a rule, too, the older sows are better mothers. Most of the winning show animals are from the older sows. Pigs from gilts do not usually get as good a start. Generally speaking, sows should not be kept after they are eight years old.

BREEDING.

If one is equipped with warm buildings, it is well

> The hog of today does not get enough mineral out of the food he eats because the land on which the food is grown does not contain it. Too many crops have been raised.

to have the sows commence farrowing about March 1. But without good housing, this is not practical. Early pigs are large enough to get the most good out of the pasture when it comes. Fall pigs should come soon enough to enable them to be weaned before cold weather.

Sows should not be bred until pigs are weaned. It is well during the mating season to have several breeding sows together so the period of heat may be readily determined. It is a bad practice to permit the boar to run with the sows and serve them at will. Not only is the male almost sure to perform too many services, thus getting smaller and weaker litters, but some sows may be missed altogether.

Gilts should not be bred before they are eight months old and not then unless they are thrifty and vigorous.

When she comes in heat, which is about every 21 days after the pigs are weaned, she should be taken to the boar's pasture or quarters and served once only. The best time for service is about the middle of the heat period which usually lasts from two to four days. A breeding crate is recommended for cases where the boar and sow differ in size.

After the sow has been bred she should be given a few days' rest alone. During this time her feed should be light.

PREGNANCY.

During the period of pregnancy the sow should be fed with a view to producing bone and muscle and tissue; consequently, very little corn should be used, but rather alfalfa or clover, oats, mill feeds, skim milk or butter milk, a little oil meal or tankage, occasionally

vegetables or roots, pumpkins or cull apples, etc. Feeding frozen roots, such as carrots and turnips, may cause abortion.

Provide plenty of water at an even temperature and plenty of space for exercise. She should have plenty of good shade in summer and comfortable, clean, dry quarters in winter.

MoorMan's Mineral Mixture is very helpful not only in keeping the sow herself in a better general condition, but to prevent constipation which is so very common and injurious among pregnant sows. Constipation must be avoided if the sow is to be successful.

MoorMan's Mineral Mixture supplies the necessary minerals needed for the development of her unborn young; for example, bone phosphate. See special brood sow instructions in the back of this book.

HOW TO CARE FOR SOWS TO PREVENT ABORTION.

Pregnant sows are easily injured by a blow or a strain. In one instance sows had to step over a six-inch board in passing through an opening between their yard and pasture. There were many dead pigs at farrowing time and some of the sows died from trouble while giving birth.

In another case, the ground next to the hog pen was eight inches lower than the floor, and the brood sows had to climb over this step with the result that there were dead pigs and dead sows at farrowing time.

Again, potatoes were dug with a plow and the land left in ridges. Pregnant sows in getting to a pea field traveled over these. At farrowing time two sows died and there were many dead pigs.

Frequently, if a boar is allowed to run with the

sows he will cause the same trouble, and it can readily be seen why horses and cattle should not be in the same lot with them. They should not be kept with other hogs, nor should more than from five to ten be allowed to sleep together, as crowding in cold weather may cause a loss at farrowing time. Remember, if you expect good, strong, healthy pigs, they must be properly taken care of before they are born.

So often after a period of severe weather or cold rains we hear farmers say, "No luck at all with my pigs this year. The sows all aborted." We are convinced that this is not contagious abortion, but the direct result of exposure to cold or storms. Remember, if you expect success at farrowing time, you must shelter these pregnant sows, especially in bad weather.

GESTATION.

Sows vary somewhat in the length of time they carry their young. The usual length of time is from 112 to 118 days, although it may be either a few days under or over this period. See table on following page.

Several times the amount of money lost on hogs from all known diseases, is lost because hogs do not weigh what they should for the amount of food consumed.

GESTATION TABLE FOR HOGS.

The following table is taken from Farmers' Bulletin 874, U. S. Dept. of Agriculture, as revised in April 1920.

It shows when a sow is due to farrow counting 112 days from the day she was served. Find the date sow was served, and the date immediately to the right is the date she is due. For instance if the sow was served Sept. 15th she is due Jan. 4th.

March	Dec.	Feb.	Nov.	Jan.	Oct.	Dec.	Sept.	Nov.	Aug.	Oct.	July	Sept.	June	Aug.	May	July	April	June	March	May	Feb.	April	Jan.
1—22	1—22	1—20	1—20	1—20	1—20	1—21	1—21	1—20	1—20	1—20	1—20	1—20	1—20	1—20	1—20	1—21	1—21	1—20	1—23	1—23	1—22	1—22	1—22
2—23	2—23	2—21	2—21	2—21	2—21	2—22	2—22	2—21	2—21	2—21	2—21	2—21	2—21	2—21	2—21	2—22	2—22	2—21	2—24	2—24	2—23	2—23	2—23
3—24	3—24	3—22	3—22	3—22	3—22	3—23	3—23	3—22	3—22	3—22	3—22	3—22	3—22	3—22	3—22	3—23	3—23	3—22	3—25	3—25	3—24	3—24	3—24
4—25	4—25	4—23	4—23	4—23	4—23	4—24	4—24	4—23	4—23	4—23	4—23	4—23	4—23	4—23	4—23	4—24	4—24	4—23	4—26	4—26	4—25	4—25	4—25
5—26	5—26	5—24	5—24	5—24	5—24	5—25	5—25	5—24	5—24	5—24	5—24	5—24	5—24	5—24	5—24	5—25	5—25	5—24	5—27	5—27	5—26	5—26	5—26
6—27	6—27	6—25	6—25	6—25	6—25	6—26	6—26	6—25	6—25	6—25	6—25	6—25	6—25	6—25	6—25	6—26	6—26	6—25	6—28	6—28	6—27	6—27	6—27
7—28	7—28	7—26	7—26	7—26	7—26	7—27	7—27	7—26	7—26	7—26	7—26	7—26	7—26	7—26	7—26	7—27	7—27	7—26	7—29	7—29	7—28	7—28	7—28
8—29	8—29	8—27	8—27	8—27	8—27	8—28	8—28	8—27	8—27	8—27	8—27	8—27	8—27	8—27	8—27	8—28	8—28	8—27	8—30	8—30	8—29	8—29	8—29
9—30	9—30	9—28	9—28	9—28	9—28	9—29	9—29	9—28	9—28	9—28	9—28	9—28	9—28	9—28	9—28	9—29	9—29	9—28	9—31	9—31	9—30	9—30	9—30
May	Mar. 10—31	10—29	10—30	10—29	10—29	10—29	10—30	10—29	10—29	10—29	10—29	10—29	10—29	10—29	10—29	10—30	10—30	10—29	June	10—29	10—31	10—31	10—31
10—1	Apr.	10—1	10—31	11—30	11—30	11—31	11—30	11—30	11—30	11—30	11—30	11—30	11—30	11—30	11—30	11—31	11—31	11—30	1	11—30	11—1	11—1	11—1
11—2	1	11—2	11—1	Feb.	12—31	Jan.	12—1	Dec.	12—1	12—31	Nov.	Oct.	12—1	Sept.	12—1	Aug.	12—1	July	2	12—1	11—2	11—2	11—2
12—3	2	12—3	12—2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	12—3	12—3	12—3
13—4	3	13—4	13—3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2	13—4	13—4	13—4
14—5	4	14—5	14—4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	3	14—5	14—5	14—5
15—6	5	15—6	15—5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	4	15—6	15—6	15—6
16—7	6	16—7	16—6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	16—7	16—7	16—7
17—8	7	17—8	17—7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8	6	17—8	17—8	17—8
18—9	8	18—9	18—8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	18—9	18—9	18—9
19—10	9	19—10	19—9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	10	8	19—10	19—10	19—10
20—11	10	20—11	20—10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	11	9	20—11	20—11	20—11
21—12	11	21—12	21—11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	12	10	21—12	21—12	21—12
22—13	12	22—13	22—12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	13	11	22—13	22—13	22—13
23—14	13	23—14	23—13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	14	12	23—14	23—14	23—14
24—15	14	24—15	24—14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	15	13	24—15	24—15	24—15
25—16	15	25—16	25—15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	16	14	25—16	25—16	25—16
26—17	16	26—17	26—16	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17	15	26—17	26—17	26—17
27—18	17	27—18	27—17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	18	16	27—18	27—18	27—18
28—19	18	28—19	28—18	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	19	17	28—19	28—19	28—19
29—20	19	29—20	29—19	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	20	18	29—20	29—20	29—20
30—21	20	30—21	30—20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	21	19	30—21	30—21	30—21
31—22	21	31—22	31—21	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	22	20	31—22	31—22	31—22

FARROWING.

A record should be kept of each brood sow showing the date of breeding, facts about her previous litters, etc.

About the hundredth day after breeding, a sow should begin to occupy the farrowing pen at night, so she will be accustomed to her quarters when the ordeal comes. During the day, however, she should have her usual exercise. The corn in her ration should be gradually decreased until only half of her regular amount is fed during the last few days. This part of her ration should be replaced by more ground oats, mill feed, etc. During the last day of her pregnancy, she should have very little food—nothing but lukewarm water.

Her farrowing pen should have only a small amount of bedding which should be clean and free from dust. It should also be provided with a fender, a railing about eight inches from the wall and eight inches high. This should be on at least three sides of the pen and must be strong enough to support the weight of the sow, should she lie on it. This protects the pigs from being laid on. They soon learn to creep under these fenders when the sow lays down.

As the time for birth approaches, the udder and teats will become smooth and full, the sow may appear restless and will likely collect litter or bedding for her bed. A milky substance may be obtained from the teats by stripping about 24 hours before farrowing. She should now be confined to her place and observed at frequent intervals. It is a good idea to handle a sow considerably before she farrows so she will not be afraid of an attendant.

After the sow shows signs of sickness she should not be disturbed by noise or attention. If she has been

properly fed and cared for up to this time, instruments will rarely be needed. Too much attention may do more harm than good. Give nature a chance first. Sometimes, however, a pig becomes doubled so it will not pass through the opening of the womb. In such cases, forceps may be used after being cleaned with a solution of some good dip mixed with 20 parts water. Great care should be taken not to injure the inner lining of the womb or the unborn pig.

If the hog house is not heated and it is very cold, throw a blanket over the sow, provided she will allow it, until she is through. Some put hot bricks in a box or barrel and put a cloth over the top and put pigs in until dry.

As the little fellows arrive, the attendant should promptly secure each one in the folds of a cloth and wipe the nostrils and mouth clean of all matter which might suffocate it. Often pigs that seem dead may be saved by wiping out the nostrils and mouth, pulling the tongue out and inducing artificial breathing by gently doubling up or bending the body and blowing air into the mouth.

To the man who is raising and fattening hogs for the market, this may seem like a great deal of trouble and a waste of time, but it will be found to be time very profitably spent. Pigs should be placed to the udder as soon as born and encouraged to nurse. If, however, the sow is nervous or vicious, it may be necessary to gather the pigs as they arrive and remove them for a time. They should be kept in a dry, warm place to

FIGHT CONSTIPATION IN EVERY MONTH OF THE YEAR

prevent chilling and put back with the mother when she is through and has become quiet.

Never permit the sow to eat the afterbirth. It may start her eating her pigs. It should be burned or buried.

Very often pigs have two long black teeth on each side of each jaw. These "black teeth" often cause considerable trouble either by injuring the udder of the sow in their little fights or by making sores on their jaws. These teeth should be clipped off as soon as the pigs are farrowed. A small pair of tin shears or molar pliers may be used. A sharp pocket knife might be used if nothing better is at hand.

In cases requiring special attention, the pigs should be allowed to suck every ten or fifteen minutes for the first few hours and once an hour for awhile afterward.

The sow should not be disturbed for the first twenty-four hours except to give her an occasional drink of lukewarm water. On the second day she may be given a light slop of mill feed or ground oats. If she is overfed at first the pigs are apt to take scours or thumps. Pasture, either blue grass, clover or alfalfa is very important at this time. If not available, feed some clover or alfalfa hay, and some mill stuff or ground oats. Corn should be added gradually and should never be fed exclusively. For three or four days the sow should be fed very lightly and should not be on full feed for ten days. If the litter is small she should still be fed sparingly. She should be fed with the purpose in mind of supplying the right amount of the right kind of milk.

CARE OF LITTLE PIGS.

The most essential element in the care of suckling

pigs is the condition of the mother. If she is overfed, or wrongly fed, the pigs will likely have thumps or scours. If she is underfed, they will be weak, or a few of the strongest will get so nearly all of the milk that the rest will become stunted.

If the little chaps are doing well by the time they are two or three weeks old they will begin to investigate the feed the sow is eating or to nibble the grass if they are on pasture. About this time they should begin to get additional food. If skim milk is at hand, make a thin gruel with shorts. Oats is a dangerous feed for pigs under six weeks old. The hulls are too sharp for the lining of the stomach and nearly always cause trouble. If oats are fed at all before the pigs are three or four months old the oats should be ground and soaked. After they are five or six weeks old ground corn and shorts with water, if no milk is available, may be fed.

Make a "creep" or small pen which will admit them but not the sow. Give them their feed in a low trough. Forcing them to eat from a high trough may cause a weak back. Be careful not to overfeed, but rather leave them just a little hungry after they clean up each feed.

Pigs need MoorMan's Mineral Mixture from the very start to prevent constipation, worms, and to make sure they get enough of the proper kind of mineral matter for developing bone; also as a general conditioner. Let them get all they want in feeders as early as they will eat it.

It may seem an exaggeration to say that pigs need sunshine and fresh air almost as much as food. But it is true. Sunshine seems to cause them to fill out and have an appearance that no artificial heat can produce.

See that their quarters are warm and dry and clean and well ventilated; give them range for exercise and when they go to market they will pay you with compound interest for all of your trouble.

WEANING PIGS.

The age at which pigs should be weaned depends somewhat on whether the sow is to raise one or two litters per year. If she is to raise two they should be weaned when about eight weeks of age.

If only one litter is intended they may suck till they are ten or twelve weeks old.

If they have been fed correctly during the nursing period they should be getting most of their sustenance from other sources than the mother by the time they are eight weeks old. Some hog men allow the pigs to run with the sow until she weans them herself. This prevents more than one litter a year usually. Another way is to take away a few of the pigs at a time, but this is not so good for the pigs that are left, for they may get too much milk. Nor is it good for the mother, for each pig usually nurses at a certain teat, very seldom at more than two and if the pigs that are left do not appropriate the teats left by the pigs which have been removed, the unused part of the udder may suffer and become caked. The best way is to wean the sow from the pigs; that is, take her away and let the pigs retain their accustomed quarters. Her feed should be reduced the last day they are with her and after they have nursed the last time, she should go a day with no feed but should have plenty of water. The second day she should be allowed a very little feed. If by this time

Hogs that are healthy make men wealthy.

she is nicely dried up she may be put on full feed gradually.

The pigs should have an increased amount of the rations they have been eating. Skim milk is one of the best feeds for this time in connection with shelled corn and pasture of clover or alfalfa hay.

As soon as pigs are completely weaned give them the Force Feed No. 1 found on page 95. This must be done even if they do not show outward signs of being wormy.

CASTRATION.

A pig should be castrated before weaning—preferably when he is about six weeks old. Have a good castrating knife and keep it very sharp. Sterilize it before each operation by dipping it in a disinfectant or boiling water. The pig should be caught by both hind legs and thrown on his left side by tripping him with your right foot or leg. The assistant should place his left knee upon its neck, hold the right hind leg with his right hand, the left hind leg with his left hand. Hold both far enough forward to give the operator room to work.

The operator should take hold of the scrotum or bag over the lower testicle first and work the testicle up until the bag is tight. Split the bag open from one end to the other and clear through the skin around the testicle at one gash. Be especially sure to cut open the lower end to guarantee perfect drainage. This is especially important when castrating large hogs. This incision should be through both the outer and inner skin and should expose the testicle. Press the testicle out with the left hand grasping it with the same hand and draw it slowly away from the body. Scrape or cut the sheath off the cord. Bruise the cord slightly close

to the body. Then cut the cord so the bruised point will remain as the end of the cord. Remove the other testicle the same way. Some pull the cord completely out but the above is the better way especially in the case of a large hog.

An antiseptic made of 1 part MoorMan Stock Dip and Disinfectant and 50 parts water should be used in washing the affected part immediately after castrating.

FATTENING HOGS.

Some feeders believe that pigs should be pushed to their limit from the start. The majority of the progressive hog men of the country hold that for the growing period of the pig's life he should be fed and exercised with a view of building up bone and muscle, thus developing a better frame and constitution. Our experience leads us to believe that the latter plan is much better. The hog has more vitality and will not be so subject to disease at any time. Grow the pig, say for the first five months, and he will be better able to stand confinement in a close pen during the heavy fattening period. A hog certainly can be fattened on much less feed when confined to a close pen. It is, of course, possible to carry this idea too far. A good rule is to stop growing and begin fattening the hog at the age of five months.

Tests seem to show conclusively that other things being equal, hogs gain faster when allowed to eat very frequently; in fact, whenever they wish, than when fed twice a day. Remember that the hog's body is half water. They should have access to water all the time, as their nature seems to crave a few swallows of water frequently. A hog's stomach is too small to hold enough water at one time to last him all day.

Do not try to make your hogs weigh too heavy; say let from 250 to 300 lbs. be the limit. The Wisconsin Experiment station some time ago compiled the results of more than 500 tests made at different stations. More than 2,200 hogs were used in these tests. It required 249 lbs. of feed to make a 200 lb. hog weigh 250 lbs., but it required 267½ lbs. to make a 300 lb. hog weigh 350 lbs.

In the fattening pen, not only the hog's food, but his general surroundings are different from those of the wild state where he exercises freely and eats grass, nuts, roots, mineral matter, etc. During the finishing period, he is leading an extremely artificial life, but unquestionably it pays big to feed in this way. At no time and in no section of this country does the hog of today live under natural conditions.

For this reason, it is highly important to give the hog free access at all times to a preparation such as MoorMan's Mineral Mixture. It is doubly important for the fattening hog. It is absolutely impossible to get the most out of the food consumed at this time without it. It stimulates and aids digestion and prevents constipation.

HOG HOUSES.

The hog house should be located where it has some protection from the north winds. A south hillside or the sunny side of a grove, or a spot that is protected by other buildings may be selected.

> The idea "root hog or die" is twenty-five years behind the times.

Another important feature is the drainage. Unless a hog house is so located that the natural drainage is practically perfect, the surrounding lot should be thoroughly tiled. It is well to lay a tile drain around the upper edge if the house is located on a sloping hillside. It is hard to overdo this matter of drainage in hog quarters.

A good type of hog house which can be built cheaply is as shown in illustration on next page. This house extends east and west and has windows on the south, east and west sides. A solid row of windows at the south side is better than single windows. There should be an offset of the roof on the south side about three feet in depth, for a row of windows to admit sunlight direct to the north side of the alley.

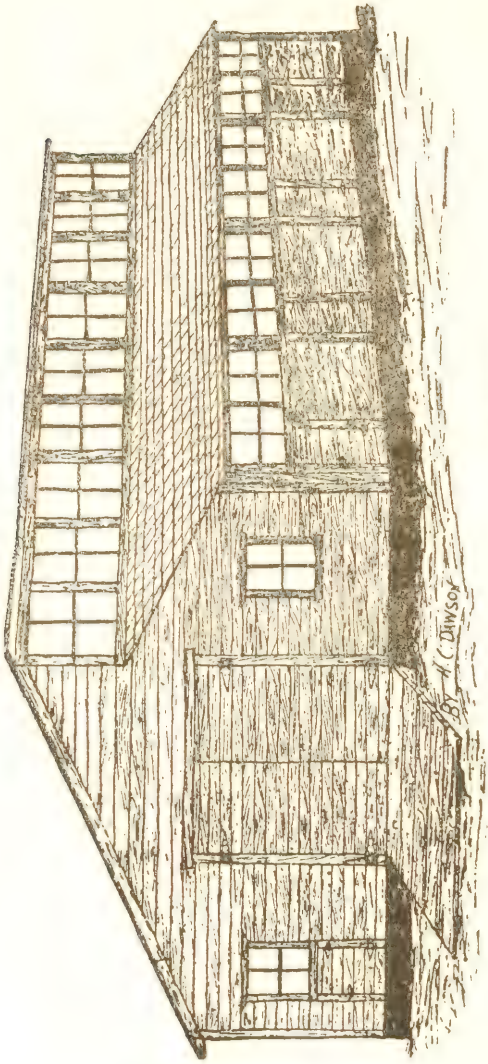
The ground floor and general plan for this house is as follows:

The width is 24 feet, the height 10 feet to the eaves, and the length as desired, say 40, 48, 56 or 64 feet.

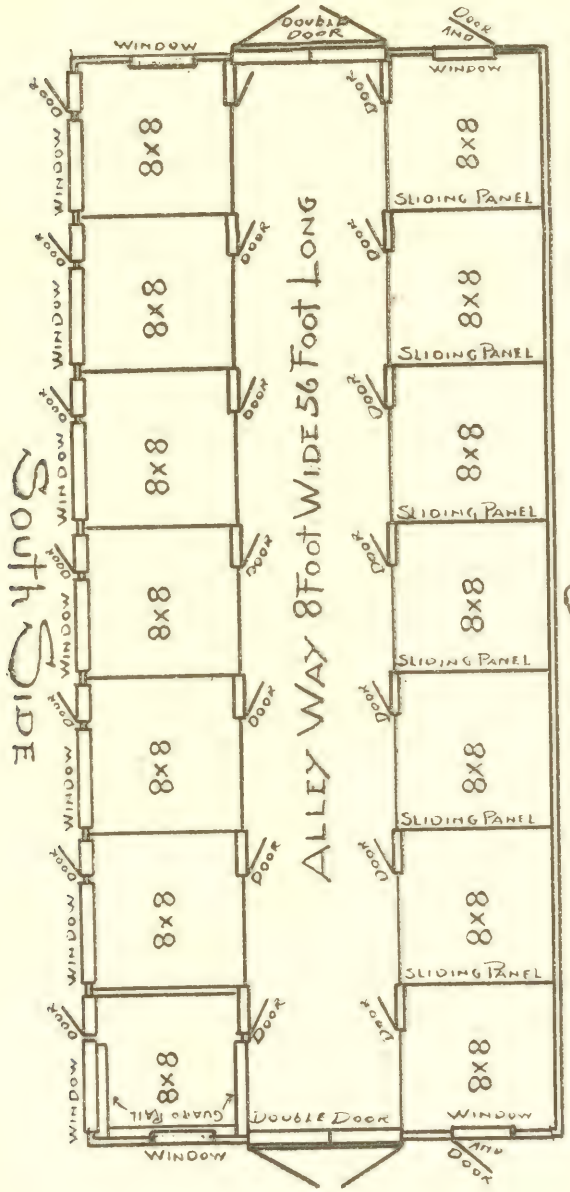
A tile should be laid around the inside of the foundation with a suitable outlet before the floor is put in.

An alley eight feet wide should extend through the center the long way. The space on each side of this alley is divided into pens eight feet square. Thus, if it is 48 feet long, there will be six pens; if 64 feet, eight pens, etc. The partitions may be movable thus making it possible to convert the pens into a large feeding or sleeping room.

The partitions should be about four feet high and should have a door opening into the alley. Each pen should have a door opening out into individual exercis-



A MODERATE-PRICED CENTRALIZED HOGHOUSE.



The floor plan used in building hog house shown on opposite page

ing pens. These doors should be tight. It is not best to have doors on the north side of the house because the north side of the building is usually cold and damp on account of a lack of sunshine.

The best material for the foundation and floor is concrete. But if this is not practical, lumber may be used, being careful to lay the planks close and tight and sloping enough to drain well. The floor should be higher than the surrounding ground by at least eight inches and should be dry and absolutely free from rats. The approach to the doors should be graded so sows will not be compelled to use an abrupt step.

If the floors are made of concrete, it should be roughed on the surface and sloped and creased so as to provide for draining the moisture to the outside of the alley.

If the cement is too cold and damp, a wooden movable floor may be constructed for each pen. These platforms should be aired and dried when necessary.

A railing should be built along the sides of the farrowing pen to protect the little pigs when the mother lays down. This should be about eight inches from the wall and eight inches high.

A hog house should be dry and almost air tight to prevent drafts. The ventilation should be regulated by means of the doors and windows.

The older the soil, the less mineral in it. Less mineral in soil means less mineral in hog feed—the reason for a mineral mixture for hogs in this country.

PART THREE

DISEASES

Hog Cholera

The hog is the only animal so far as is known that is susceptible to this disease. At one time almost all hog diseases were considered cholera but the more progressive feeders and veterinarians now know that when hogs get "off" they do not necessarily have cholera.

It is very difficult sometimes to be sure that an attack of sickness is cholera. Even a post mortem examination will not always be proof, as other troubles also produce internal conditions very similar to those of cholera, for instance hemorrhagic septicaemia.

The first attack of cholera in the United States, on record, occurred in Ohio in 1833.. It was recognized in England, however, about 100 years ago and is now found not only in Europe but in practically every country in which swine are kept.

We are not absolutely certain yet as to the cause of hog cholera. Most authorities believe it is caused by a germ so small that it cannot be seen even through the most powerful microscope. It is not easily destroyed and may survive one winter, possibly longer. It may be transmitted by hogs having the disease, or by their droppings, urine or discharge from their nose or mouth; or by food, water, stock yards or anything else with which the diseased hogs have come in contact.

The germ is injected into the blood when a "double treatment" of vaccination is given, consequently such hogs will transmit the disease.

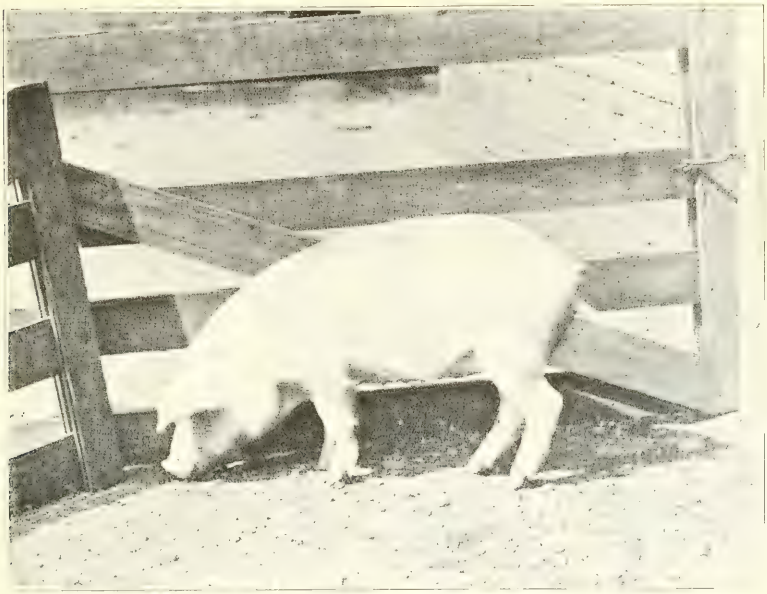
The symptoms of hog cholera are not always the same as there are four different types of the disease. First, the septicaemic or pure hog cholera; second the intestinal; third, the pectoral (pertaining to the breast); fourth the mixed form.

In the first type, which is the most severe type, animals will sometimes be found dead before the owner knows they have it. In ordinary cases the hog is inclined to go off by himself and stand with the back arched and the head hanging down (see picture). They may be found with their noses under their bedding and their feet tucked up under their belly as though they were suffering from abdominal pain. They walk with a wabbling gait and often go stumbling about as though blind. Sometimes when they are trying to stand there will be a leaning or reeling of the hind quarters or they may stand cross legged as though they were trying to keep from falling.

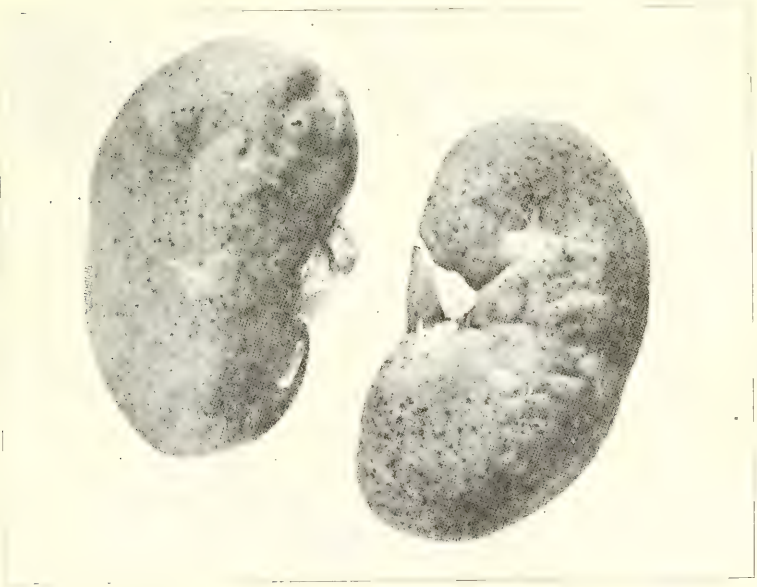
The temperature rises from normal, which is about 102½°, to from 105° to 107° or even higher. The appetite fails and vomiting may occur.

Constipation usually occurs in the first stages due to the fever drying the moisture in the intestinal tract. This is usually followed by diarrhoea, the discharge showing some blood. There is usually an inflammation of the eyelids from which comes a secretion that is watery at first but soon becomes puss like and sometimes causes the eyelids to stick together. Red blotches

The boar is half the herd.



A CHOLERA PIG



KIDNEYS OF DISEASED HOG

A COMMON SOURCE OF INFECTION OF ALL KINDS OF DISEASE

may appear on the skin, especially back of the ears or on the under side of the neck and belly.

In the intestinal form the symptoms may be so mild as to escape notice. It may kill a hog in a few days or the disease may prolong for from three to twelve weeks. When the disease lasts for weeks the animal becomes weak, appetite fails, large sores may form on the back and other parts of the body, the red blotches on the skin become dry and hard and slough off. Sometimes the tail and parts of the ears will come off.

The symptoms of the pectoral type are the same as those first mentioned in pure cholera. In addition to the symptoms of pneumonia, the animal coughs and has difficulty in breathing. The mixed form of cholera is where the first type of pure cholera exists with complications of the other two forms. This is perhaps the most common form, although all four types may exist in the same herd at the same time. Certain small spots on the kidneys were first supposed to definitely indicate cholera, but these have frequently been found when cholera was absent. (See illustration, page 51.)

An enlarged spleen can no longer be considered positive proof, as this sometimes occus because of indigestion.

Ulcers or sore places usually are found in the lining of the hog's intestines.

There are sympathetic or cholera glands under the lower jaw bone. It is necessary to peel the skin back in order to locate them. It is a rather sure sign of cholera when they are swollen or inflamed.

The vital five months of a hog's life are the first five.

TREATMENT FOR HOG CHOLERA.

If hogs are kept clean and if the "sanitary rules" are observed they will not likely contract this disease. If, however, cholera breaks out in a herd or if you know that they have been exposed there is only one known treatment that is successful. That is vaccination.

A competent veterinarian should be employed for this work. Carelessness of a veterinarian in vaccination has sometimes helped spread the disease instead of checking it.

When serum alone is used it is called the single treatment. It renders the hog immune for from one to twelve weeks. The advantage of the single treatment is that it does not transmit the disease.

The double treatment renders the hog immune for a much longer time, but if the hog is inoculated with the disease at the same time the serum is used, which is what is done in the case of "double treatment," it must be remembered that you give your hogs the cholera and that other hogs which have not been vaccinated will contract the disease if exposed to them.

Sanitary Rules

Keep the hog house, lot and field clean of all rubbish, manure and straw piles. Haul the manure and straw piles away. **BURN** all rubbish. Provide a concrete or wood feeding place and clean it at least three times a week. Fill all holes and provide a concrete wallowing hole. Keep enough dip in the water to prevent the hogs from drinking it.

Mix one part **MoorMan's Stock Dip and Disinfectant** to fifty parts water and spray the feeding place and

hog house once a week immediately after they are cleaned. Force all hogs in a small pen once every two weeks, the floor of which is covered with straw and soak them with a solution of one gallon of dip to seventy of water.

Make sure the hog house is dry and admits sunshine. It should provide plenty of fresh air—no drafts. Provide plenty of clean water in sanitary fountains. Let all hogs, except fattening hogs, get plenty of exercise.

Disinfect all hogs you buy before they are brought home.

Do not allow your hogs to use a field through which a stream flows which flows through a field that is used by cholera hogs or hogs having received the "double treatment." Neither must they use fields adjoining fields or lots used by such hogs.

Do not keep pigeons, and try to keep crows scared away by occasionally shooting at them.

Keep all callers out of your hog lot if you have sick hogs or if the caller has visited other pens.

If there are sick hogs in the neighborhood, chain your dogs.

A FACT—The price of one bushel of corn invested in MoorMan's Mineral Mixture will, on an average, mean $2.00 extra gain besides paying for the original bushel.

If you have sick hogs, the keeper should not wear his working clothes off the place. Anyone leaving the place when your hogs have the cholera should disinfect his feet with a strong solution of dip; also disinfect the horses' feet and wagon or auto wheels and tires.

Burn all hogs that die—do not bury them. A hog can best be burned by digging a trench in which wood can be put. Then put an old mower wheel across the trench or something else that will keep the hog from falling on the firewood.

Provide plenty of shade and keep down dust in such shades and around feeding places or beds by sprinkling lightly with crude oil. Allow it to soak in before giving the hogs access.

Swine Plague

Swine plague is often confused with hog cholera which it resembles in many respects. It is caused, however, by an entirely different germ known as the Bacillus Sinsepticus. Swine plague is not as fatal as cholera, neither is it so common. The germ usually finds its way into the system through the respiratory organs, but it may get in through the digestive tract or through the skin.

SYMPTOMS.

In most cases of swine plague the symptoms closely resemble those of cholera, especially the pectoral form of cholera. The lungs are always affected as

MoorMan's Mineral Mixture, good at all times for all Hogs.

A condition of this kind is a disgrace to any hog raiser

Every hog raiser should have a concrete wallowing hole and keep a very small amount of disinfectant in the water

The feet should be disinfected after being among cholera hogs. Soak a sack in a strong solution of dip, which is a disinfectant and then carefully wipe feet

evidenced by difficult, painful breathing, short, spasmodic cough. The temperature is from 3 to 5 degrees high also. It is only when the inflammation in the lungs is extensive that the hog man can tell it from cholera. It may be in a severe form, causing death in twelve hours; or in another form it usually ends fatally in about one week. Sometimes it becomes chronic and lasts from four to six weeks.

TREATMENT.

There is no known cure for swine plague. Keep down all dust by spraying with crude oil. Give the entire herd the treatment found on page 100 under heading "Treatment For Sick Hogs." This will probably do much good.

Breaking Down in the Back

Breaking down in the back, or paralysis of the hind parts is frequent in growing hogs. One of our most eminent authorities considers it a result of not enough mineral matter in the food. A hog with this disease has soft, spongy bones. The older a country becomes, the less mineral matter is found in the soil. Consequently crops grown on such land will contain less mineral matter than they did years ago. Since it is greatly on the increase in this country, it is evident that when whole herds are affected, it is caused by a lack of mineral matter.

It may sometimes be caused by an inflammation of the spinal cord, caused by disease or injury, or by a parasite existing in the cord. It may come on gradually, the first symptoms being an unsteady gait, in which the hind legs wabble and get out of line, causing the hog to move sideways. It is hard for it to get up

when lying down. It gets worse until finally it drags the hind parts. These cases seem to occur more frequently of late. One case is reported where a herd of two hundred all broke down within ten days. Many similar cases have been brought to our attention.

TREATMENT.

See page 106.

Abortion

Abortion (or slipping the pigs) may be due to some accident or mistake in feeding, or it may be caused by a germ. In the latter case it is infectious.

Abortion may be caused:

1. By keeping sows where they are crowded.
2. By exposing them to cold or severe weather.
3. A blow or injury to the belly may cause it or where the sow crawls through a small opening or is crowded in going through a gate or a door, or where she drags the belly in going over a rail or sill, or even in having to travel over rough ground.
4. Kicks or blows or excitement, such as is caused by dogs, or other animals in heat, or a boar, may cause it. Feeding frozen roots or spoiled food, or food containing ergot may cause it. It may follow other diseases such as cholera.

The form of abortion which is caused by a germ is not very common. In case it occurs, care should be taken to keep the well ones separated from the ones which have aborted.

MoorMan's Mineral Mixture makes good hogs better.

SYMPTOMS.

The symptoms vary according to the state of pregnancy. If caused by an injury, the sow acts sick and may tremble or shiver at the last. The birth may be difficult. Abortion in the form caused by a germ is not likely to cause much of a disturbance.

TREATMENT.

Little can be done to check abortion after the disturbance has begun. She should be kept quiet and as comfortable as possible. It is best to remove her from the herd to prevent spreading in case it is the infectious form. The afterbirth and dead pigs should be burned and the pen disinfected.

Diseases of the Respiratory Organs

These include "cold in the head" or catarrh, sore throat, pneumonia, which is also known as inflammation of the lungs, or lung fever, bronchitis and pleurisy. One or more of these may attack very suddenly.

Hogs "catch cold" from being exposed to bad weather or from draughts, especially if they are overheated. We knew of a farmer whose herd took a severe cold from being exposed to the first freeze of the season. He became alarmed and arranged for vaccination with a heavy loss as a result.

Hogs sleeping around straw stacks or manure piles are apt to get too warm and chill when they get out. Dust, especially from sleeping quarters, is apt to irritate the air passages and is a common source of germs. Dust around sleeping quarters should be kept down by lightly sprinkling crude oil. Exercising fat hogs too much when they are not used to it often causes lung trouble.

The symptoms differ in some respects, but these diseases are generally indicated by difficult breathing, coughing or sneezing, loss of appetite, more or less fever, eyes becoming red and watery.

The only practical treatment for this class of disease is given on page 102 under head of "Lung Trouble."

Lung Worm or Whooping Cough

This is a small, threadlike worm, white or brownish white in color and from an inch to an inch and a half in length. Its life history is not thoroughly understood but it is much more common than is usually supposed. The lungs of a thousand hogs were inspected in a Kansas City slaughter house and about six hundred of them were affected. Young hogs are more susceptible but swine of any age may suffer an attack.

The most prominent symptom is a cough which usually comes on after leaving the bed, or after exercising or eating. Sometimes the coughing is so severe that it has given rise to the term "whooping cough." The pig may put his nose to the ground and press hard while coughing and either vomit or expel mucous.

For treatment, see full instructions on page 102.

Worms

For practical purposes we only deal with two kinds of intestinal worms, the common round and thornhead. When these are prevented all others will also be prevented.

MoorMan's Hog Worm Expeller is furnished and used only with MoorMan's Mineral Mixture.

The intestines of a five weeks old pig completely filled with common round worms

Every cavity of this liver is completely filled with common round worms. It was taken from a shoat three months old

Almost all swine are furnishing a living for at least a few worms in the intestines and in most cases many. These produce injury in several ways. First, they take food which the hog itself should use. Second, by attaching themselves to the walls of the intestines they cause inflammation and ulcers and sometimes holes in the intestines result. Third, they obstruct the intestine or duct leading from the liver. Fourth, they throw off a poison which is taken up by the blood.

Common Round Worms

The common round worm is a parasite of the small intestine although a few may find their way into the large intestine and pass out. In extreme cases they migrate to the stomach and liver completely filling every cavity of the latter. As many as seventy-five have been found in one hog.

Pigs weighing from 25 to 100 lbs. are the most frequent sufferers, although they are found more or less in practically all hogs. In color they are white or pinkish white; in size they are from 6 to 12 inches long, the smaller ones being the males.

SYMPTOMS.

If there are only a few worms no marked symptoms may be noticed. Nevertheless, injury is done. If they are present in large numbers, the hog becomes restless and nervous and shows signs of indigestion. If the duct from the liver is obstructed, there will be indigestion and jaundice or the yellows.

For worms use MoorMan's Mineral Mixture.

The surest indication is an occasional worm in the droppings. Long, rough hair and a general stunted look may indicate there are worms, but does not prove that such is the case.

Pigs which are kept in dirty pens or lots and eat from filthy troughs and drink impure water or wallow in dirty water, or which sleep and root around manure and straw piles are almost sure to have them. Alfalfa or red clover furnishes an excellent source of infection. The eggs are found on all food. This worm comes from an egg not a germ.

TREATMENT.

It is possible to reduce the chances of infection by the practice of sanitary methods, but it is easy to see that the chance cannot be eliminated. FIRST: a healthy body is necessary as a hog in a rundown condition is an easy prey. SECOND: A worm poison must be taken into the body daily. Do not try to depend upon expelling them by the use of a worm expeller. They must be prevented. MoorMan's Mineral Mixture is a perfect preparation for this purpose.

Thornhead

The thornhead worm is mainly a parasite of the small intestine, but is sometimes also found in the large intestine. It is usually attached to the intestinal wall by means of its proboscis which has several rows of hooks, hence its name—the thornhead.

The male and female thornhead worms attached to the lining of the intestines. The small worm is the male and the large the female

There were twenty-four thornheaded worms from which this specimen was taken. This is about as many of this type of worm ever found in one hog.

The female when full grown is ten or eleven inches long and is the largest worm that infests hogs. The average length of the male is only about three inches. The thornhead is a thick, cylindrical white worm, wrinkled across, which tapers from the head to a blunt point at the tail.

Thornheads are not found in as large numbers as the common round worm. It is unusual to find more than five or six of them in one animal. This number will cause more trouble than a larger number of common round worms.

INFECTION.

The female deposits the eggs in the hog's intestines from which they pass out with the droppings. The eggs are eaten by white grubs. Hogs in rooting around manure piles and sod pasture discover and eat the white grub and thus the larvae of the thornhead is liberated by digestive juices and finally reaches the small intestines where it becomes a parasite.

SYMPTOMS.

An animal having a thornheaded worm will usually show signs of pain as this parasite moves about and attaches itself in different places until it buries its head. It does not cause the hog to become weak and rundown although it greatly upsets the digestive apparatus.

TREATMENT.

This worm must be prevented or removed when it is not attached to the intestines as it cannot be expelled after the head is firmly attached.

Lice

The hog louse when grown is about one-fourth inch long and may appear at any season of the year and may thrive on hogs of any age, whether in good condition or not. They are blood suckers and make hogs more likely to contract disease.

The louse is usually found where the skin is thin as behind the ears, along the neck, back of the shoulders and in the creases on the lower part of the ham. If a hog or pig is unthrifty, they multiply very fast. The bite is very irritating.

The eggs or nits are attached to the hair or bristles and can only be destroyed by fire. It perhaps takes from one to three weeks for them to hatch.

It is more difficult to kill the lice scattered around the hog houses, pens, lots, etc., than the ones on the hogs. Where a herd is badly infested all bedding should be burned and loose floors and partitions torn out. Old boards and rubbish should be burned and the quarters thoroughly disinfected by spraying with a good stock dip according to directions.

The hogs should be dipped or sprayed in the same solution. To spray hogs for lice, put them in a close, clean pen, the floor of which is covered with straw, and spray thoroughly. This should be repeated twice at intervals of ten days to destroy the young lice which hatch after the first treatment.

MoorMan's Hog Worm Expeller makes worms go and the Mixture makes hogs grow.

Beards from Wheat or Barley

Sometimes hogs which have access to wheat or barley stubble or strawstacks get beards stuck in the mouth, throat, larynx or stomach. In some cases this causes a sore mouth or throat, in others it causes a general disturbance of the stomach and intestines. It may cause difficult breathing. Sometimes the beards form a roll or ball and work down towards the base of the tongue or into the stomach or air passages.

TREATMENT.

Remove the beards if possible by opening the mouth with a large stick placed crosswise in it removing the beard with a long forceps-like instrument. If the beards are far down in the air passages or stomach, the animal is almost sure to die.

Poisoning

Salt Poisoning.

Salt is perhaps the most frequent cause of poisoning hogs. Less than one-half pound may produce fatal results. It produces intense inflammation of the stomach and intestines. It usually occurs when hogs have not had access to salt for several weeks, or to some preparation which takes its place. They simply eat too much. It occasionally occurs from eating garbage and very frequently from drinking the brine of ice cream freezers which are allowed to stand in yard or lot used by hogs. Brine from meat barrels or fish kegs seems to be relished by swine and produces poisoning as described above. Brine is thought to contain other ingredients which are poisonous to hogs also.

SYMPTOMS.

The animal very soon shows intense thirst, is restless, runs about, lies down, gets up, and sometimes stamps the feet and squeals. Vomiting nearly always happens and unless death occurs soon, diarrhoea will likely follow.

TREATMENT.

The treatment consists in causing the animal to vomit which may be done by giving it ten to fifteen grains of sulphate of zinc in a little warm water. The hog should have plenty of water to drink, and oils or flaxseed tea may be given to relieve the irritation. Rectal injections are also helpful in cases of several hours standing. If the hog acts stupid a stimulant should be used.

Ergot Poisoning

Ergot Poisoning of Rye and Other Cereals.

Ergot is a fungous growth which occasionally grows in the place of the grain of rye, wheat and other cereals. It is found in screenings from threshing machines or elevators and may some years be found on rye pasture. It is a severe poison to any hog and especially injurious to pregnant sows.

SYMPTOMS.

The symptoms are stiffness, lameness, tender joints and feet and gangrene of different parts of the body. Red spots that finally become black and dead appear on the skin. The gangrene causes part of the ears and tail to drop off. The mouth may be sore and the eyes swollen also.

TREATMENT.

Find where the ergot is coming from and shut off that part of the feed. If the weather is cold, furnish warm quarters. Iodide of potassium may be given in slop twice a day until a cure is affected or death results. Ten or fifteen grains is a dose.

Lye Poisoning

Farmers sometimes think they can handle the worm situation by lye. Worms can be expelled by its use, but it cannot be done without positive and permanent injury to the walls of the intestines. It is very likely to injure the entire herd. Sometimes it may escape notice but the intestines are permanently injured just the same. Lye should never be used in any form. You may escape noticeable trouble for several years, but you are sure to injure hogs in some degree in time. Lye has killed many hogs which were supposed to have died from cholera, as the symptoms are very similar. Very often, wash water and especially "dish water" containing washing powders or lye form a large part of the swill.

SYMPTOMS.

The symptoms are restlessness, vomiting, diarrhoea, high temperature, lameness and partial paralysis of the entire body, or paralysis of some limb.

TREATMENT.

The treatment is mostly preventive; that is, do not feed slops containing washing powder or lye. Vomiting should be induced as early as possible by giving ten to

fifteen grains of sulphate of zinc in a little warm water. If this is not at hand, a table spoonfull of vinegar may be given to each hog to neutralize the alkaline substances.

Cottonseed Meal

Two weeks at a time is long enough to feed cottonseed meal to hogs. Longer than this is apt to cause fatal results. The symptoms are staggering, weakness, blindness, walking in a circle and running into fences, etc.

TREATMENT.

This form of poisoning is not as yet well understood. Give plenty of exercise and change feed; if possible give access to green feed. Give a good physic with MoorMan's Mineral Mixture by putting it in the drinking water or by forcing them to take a large quantity mixed in a small amount of feed. If the hogs get well do not give any more cotton seed meal.

Tuberculosis

Tuberculosis is common among dairy cows. Dairying has increased of late years and skim milk or buttermilk from creameries is often fed to swine. This is the most common source of tuberculosis among hogs. If only one herd is tubercular of all the cows whose milk is taken to the creamery, it may infect every herd of hogs being fed the skim milk. It seems to be on the increase.

Among larger hogs, it is more commonly found in the fat ones than in light ones.

They often appear in perfect health and in such cases it is only after they are killed that the disease is discovered.

If a sow has tuberculosis her pigs are likely to take

it from her milk. Hogs also sometimes contract the disease by breathing the air that has been exhaled by a sick hog.

While it is undoubtedly caused by a certain germ, it develops more readily under unsanitary conditions such as crowded pens, or filth or lack of sunshine. Early forcing may weaken a pig's resistance, too.

When pigs become infected from nursing a tubercular mother, they show distinct symptoms as contrasted with older hogs. They become stunted, "pot-bellied" and thin. The skin may be covered with crusts, and vomiting or diarrhoea or other digestive disorders may occur.

SYMPTOMS.

It is practically impossible to be sure of the presence of this disease without the tuberculin test or a post mortem examination.

TREATMENT.

There is just one way to fight this disease and that is to prevent it. This can be done by observing the rules of sanitation, keeping healthy hogs from coming in contact with diseased ones, and to cook thoroughly any suspected food such as garbage or milk. The germ is killed by boiling—not simply heating—for 15 minutes.

Constipation

Constipation is directly or indirectly perhaps the source of more diseases and suffering in the HUMAN

Use MoorMan's Mineral Mixture—more pounds—more dollars.

FAMILY than any other one factor, and the same is true of swine.

Pregnant sows are almost sure to be constipated, especially just before farrowing. A hog need not necessarily have difficulty or strain in passing the waste matter in order to be constipated. That, of course, is conclusive proof, but it is not the test.

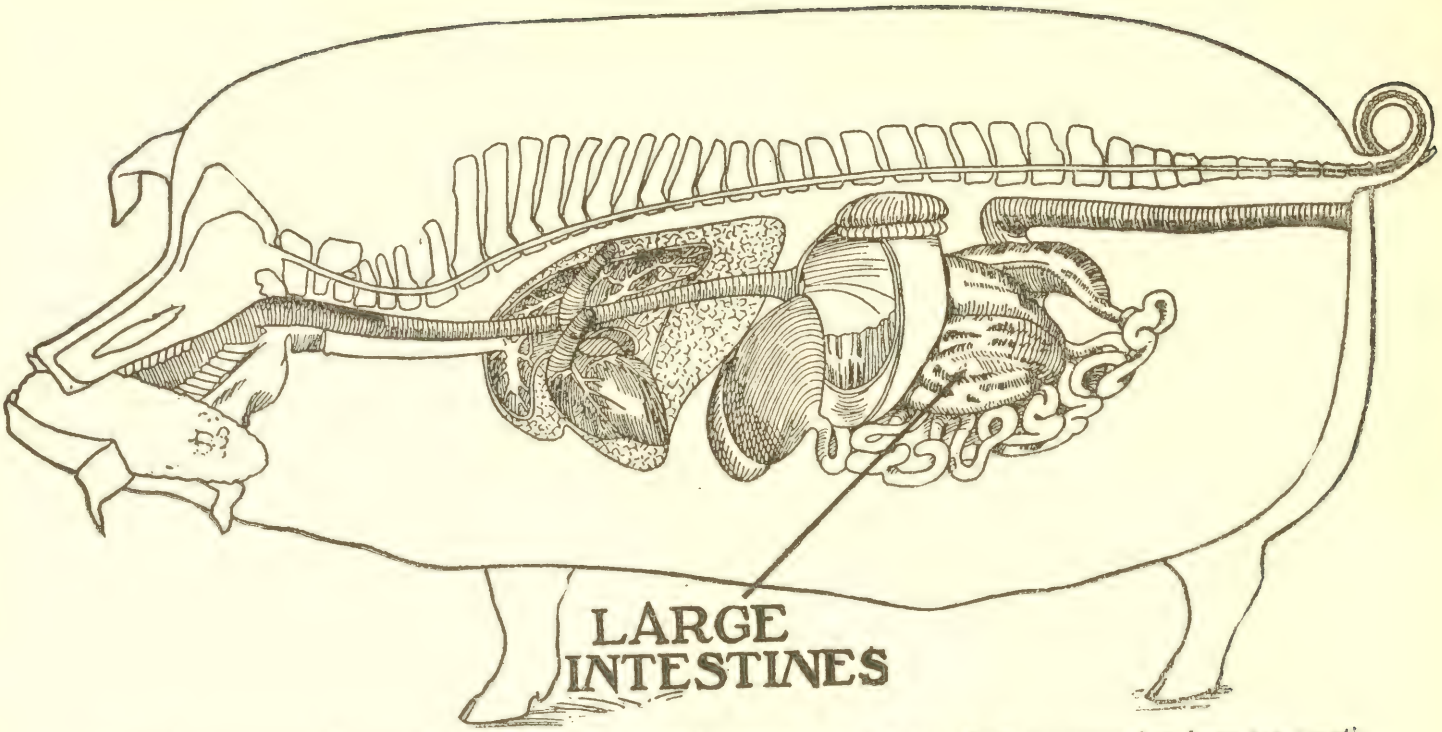
Hogs, especially those that are being fattened, SHOULD HAVE A BOWEL MOVEMENT ALMOST HOURLY AND THE DROPPINGS SHOULD BE SOFT, NOT HARD OR CAKED. Many hog men think their hogs' bowels are in perfect condition when they are in very bad shape.

Constipation may result from a great number of causes; for example, not enough exercise, too much of one kind of feed, such as corn, grass that is somewhat dry instead of green and succulent, worms, indigestion, or the tendency may be inherited. The feeding of soft coal is a very common cause.

RESULTS.

If its results and losses both direct and indirect for a year could all happen and be seen in a week, we would consider it one of the worst, we may almost say, THE worst calamity known to hog raisers. The fact that it is doing harm every day, instead of all at once is the reason we put up with it. Worms and indigestion are in the majority of cases either the direct or indirect results of constipation.

It causes poisons to be held in the system and absorbed absolutely contrary to nature's plan. Thus the blood is made impure and no part of the body can be at its best with the life fluid carrying poison and harmful bacteria. The liver becomes torpid and the system frequently becomes feverish.



The large intestines of the hog where the waste matter accumulates and gives off the poison when hogs are constipated. No food nutrients can be taken into the body from hard waste matter. Keep it in a semi-fluid condition all the time.

Whatever the cause of constipation and whatever form it may take, you can absolutely depend upon this: MoorMan's Mineral Mixture used as directed will relieve it. See complete instructions in back of this book.

Indigestion

Indigestion comes from spoiled feed or swill which contains injurious substances such as washing powder and soap or decaying garbage, over-eating, straight corn diet, intestinal worms, constipation and poor care such as exposure or filthy surroundings.

SYMPTOMS.

Some of the symptoms of indigestion resemble those of cholera in its first stages. To distinguish it from this and other serious troubles, is at times a very hard task. Entire herds are frequently attacked.

TREATMENT.

It is impossible for the practical man to handle this disease in any but a general way. Use a Mineral Mixture which will control it.

White Scours in Pigs

In the pig we have the making of a hog. And for every pig that dies there will be one less hog to market. One of the most serious troubles of young pigs is white scours. Constipation in the sow will cause white scours in pigs almost without fail. It is often caused by giving the mother the wrong kind of food or too much food. Too much corn or other rich food should be avoided. If

MoorMan's Mineral Mixture makes a bushel of corn worth 20% more.

the sow is constipated it may so change her milk that it will cause scours in the litter. Changing the feed suddenly or feeding dirty slop or using dirty troughs or swill barrels is apt to cause diarrhoea in either nursing pigs or those that are weaned.

Unsanitary conditions, such as damp, dark, dirty pens often produce this trouble.

TREATMENT.

Keep the sow in perfect condition through the use of MoorMan's Mineral Mixture and you will take the longest step possible in preventing this disease in pigs. Virtually everything depends upon this.

Provide dry, clean quarters; see that they have plenty of pure air and sunshine and see that the mother's milk is right, thus preventing the scours.

If the disease occurs, see that the condition of the mother is corrected. Three drops of laudanum on the tongues of the pigs, or from half to a teaspoonful given to the sow is sometimes necessary. See complete directions page 105.

Sore Mouth

Sore mouth may be caused by unhealthy slops or dirty water such as is found in foul wallows or water from feeding lots or manure piles.

The beards on barley or wheat may cause inflammation of the mouth.

SYMPTOMS.

At first the mouth is hot and red and dry. Small inflamed patches may be seen on the inside of the mouth. Then the saliva is seen dropping from the mouth which has a bad odor and the animal loses appe-

tite. It may clamp its jaws or run the nose and mouth into water trying to find relief.

TREATMENT.

Furnish plenty of clean water, and a small amount of clean, sloppy feeds. Wash the mouth with one part dip to 100 parts water twice daily.

Sore Feet

Driving hogs over rough roads or keeping them on hard floors may cause sore feet. Hogs kept in filthy lots sometimes suffer from this disease too, as germs enter the softened tissue between the claws, causing inflammation.

TREATMENT.

They should be removed from the cause and once a day be driven through a mild solution of a good coal tar dip of one part water and 20 parts dip.

Foot and Mouth Disease

This is a very contagious disease which principally affects cattle and sheep. Hogs are subject to it also and sometimes horses, dogs and other animals.

It is found extensively in some of the European countries, and has appeared in the United States six times, viz., in 1870, 1880, 1884, 1902, 1908 and 1914. In the last outbreak several centers of infection were established by using anti-hog cholera serum that had been made from affected hogs. The disease appears in two forms, one of which is more severe and is called the malignant form; the less severe form is called the benign. Hogs usually have the less severe form.

It is caused by a virus which is not as yet very well understood. This virus is found in the watery fluid contained in the little sores in the mouth or on the feet

of affected animals. This virus will retain its vitality a long time in buildings or lots that have not been disinfected.

SYMPTOMS.

The most common symptoms of this disease in hogs is lameness. The animals dislike to walk and if compelled to do so will probably walk on their toes.

Vesicles (the little sacks containing the watery fluid from the size of a grain of wheat to a pea) may be found around the edge of the hoof and between the toes.

These vesicles usually do not last long, but break and peel off leaving a raw surface. These vesicles may sometimes be found around the nose and in the mouth.

The disease usually lasts in hogs from one to three weeks but may last longer. Ordinarily it is not fatal unless complicated with some other disease. The animals, however, lose flesh rapidly.

TREATMENT.

There is no known treatment that will cure. The animals are always killed and burned, and the premises properly disinfected. Since it is a new disease in this country and methods of disinfection are not standardized we do not give a specific method. This is always taken care of by government authorities.

Thumps

This is a very common trouble among young hogs that are overfed or do not have enough exercise. It may be from a sudden violent beating of the heart or from a spasm of the diaphragm. The latter causes a jerking movement of the flank so violent at times as to move the body considerably. A straight corn ration without a mineral mixture or the lack of exercise are the chief causes.

TREATMENT.

When a few hogs have the thumps give the entire herd the treatment found on page 103. After this treatment be sure to follow by providing a radical change of diet. Put them on grass for a few days or weeks if possible.

Rheumatism

Hogs apparently are not as subject to rheumatism as some of our other domestic animals. This is probably due to the fact that their fat is a protection.

Undue exposure undoubtedly helps to bring on an attack of rheumatism but the later authorities hold that there must also be some other cause such as a germ or injurious chemical substance which are absorbed.

SYMPTOMS.

The principal symptoms are lameness which seems to get from one leg to another. There is evidence of severe pain also. Sometimes there is a swollen condition of the hock, the knee or joints of the foot. In severe cases the animal loses appetite and dreads moving about.

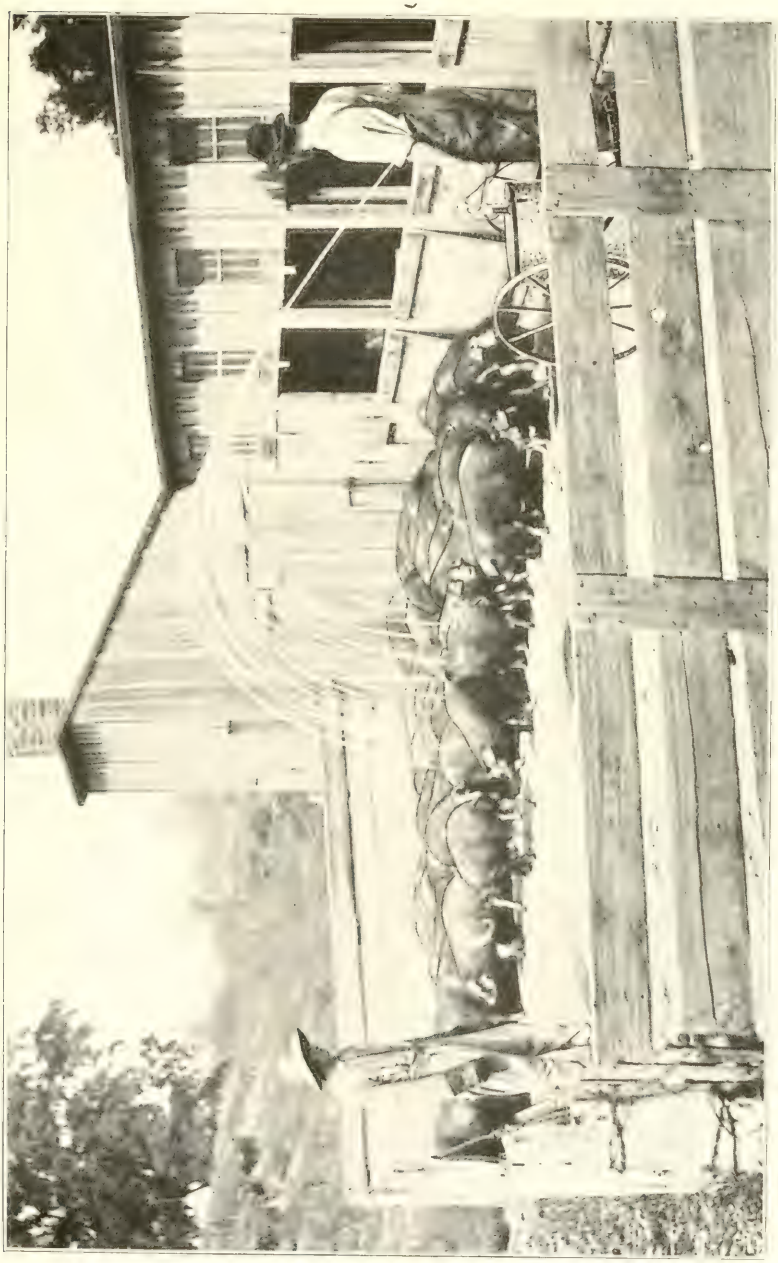
TREATMENT.

The preventive treatment is to provide dry, clean quarters and to avoid exposure in severe weather. Keep bowels loose by putting ¼ pound MoorMan's Mineral Mixture to each hog in the drinking water. Give clean, sloppy foods.

Rickets

This is a disease of the bones caused by a lack of

Use MoorMan's Mineral Mixture right—it pays.



Hogs being sprayed for lice. Spraying is easier and can be done more quickly than dipping.

Disinfecting hog quarters with a dip solution

mineral matter and is usually confined to young pigs. There is an enlargement or distortion of the joints and bones. The bones are soft and so spongy that one can cut them easily with a knife.

It is caused from a lack of mineral matter for bone building. One form of rickets seems very similar to "bull nose" and to "breaking down in the back" all of which come from a lack of development of the bones.

SYMPTOMS.

The weakness of the bones is shown by bending of the legs or breaking down upon the feet. The back may be arched or sagged. The head and face may be out of shape. There may be nervous disturbance such as dizziness or convulsions.

TREATMENT.

In its early stages this disease can be controlled fairly well, but it must be taken in hand early. Provide sanitary quarters and a balanced ration. Give two or three doses of ¼ pound of MoorMan's Mineral Mixture to each hog in the feed. Also put some of the Mixture in the drinking water. This is especially valuable here, as MoorMan's Mineral Mixture is strong in bone building materials which is often lacking in food. Advanced cases cannot be cured.

Preventive treatment is much more effective than an attempt to cure. Use MoorMan's Mineral Mixture constantly to prevent all diseases caused from a lack of mineral matter.

Sniffles or Snuffles or Bull Nose

This disease is not very well understood as yet. It is characterized by difficult, noisy breathing. When the pig lies down the discharge accumulates in the

nasal cavities and causes it to cough and blow the nose when it gets up. The face and nose become swollen and out of shape. It is caused by a germ.

After the disease is well advanced a complete cure is almost impossible. Some few pigs may survive but they will be runts.

Both time and trouble are usually saved by destroying the pigs thus affected.

Some authorities consider the disease contagious. Other investigators incline to the opinion that the CONDITIONS which give rise to the trouble in one pig may also affect others.

Measles

Scientific Name—Cysticercosis.

The so-called measles in swine results from the cystic form of the tape worm. It prevails in practically all countries.

The tape worm lives in the intestinal tract of the human family. The eggs pass out with the fecal matter and are eaten by swine. The digestive juices dissolve the shells of the eggs and six hooked embryos bore through the walls of the stomach, some entering the blood vessels, thus reaching all parts of the body. Those which reach the muscles take the form of a cyst and develop first to the size of a pinhead in about twenty days and in two months it is the size of a small pea. In three months it is matured. If a human eats raw pork containing one of these bladder worms, it develops into a tape worm from which in from three to five months a mature segment containing from 10,000 to 20,000 eggs would be thrown off.

Blindness and symptoms of rabies have been reported in cases of general infection and finally death.

SYMPTOMS.

There are no definite symptoms. Examine the membrane of the mouth, especially around the tongue. If the tissues are affected, small pimples may be noticed.

TREATMENT.

All that can be done is to prevent contamination of swine food and water with human excrement. There is no known cure after the embryo gets to the muscles. Kill affected hogs.

Kidney Worms

The kidney worm is found in the kidneys and the fat around the kidneys. It is from one to two inches in length.

It was formerly supposed that kidney worms caused breaking down in the back, but this is not correct. Neither does it cause or indicate cholera.

There are no symptoms in the living animal by which we can detect this parasite, nor is there any effective medical treatment.

Heat or Sunstroke

This may be caused by crowding in wagons or cars or by exercising hogs not accustomed to it during the warm weather. They may also suffer from the sun when in pasture or yards if there is no shade.

MoorMan's Mineral Mixture makes more pounds of pork from exactly the same amount and kind of food.

SYMPTOMS.

The usual symptoms are depression, uncertain gait and rapid breathing at first, followed by trembling of the muscles, falling down and convulsions. In some cases the animal dies almost immediately. In other cases it may live a few days, and occasionally one recovers.

TREATMENT.

Place the animal in the shade, and apply a very small amount of cool water, but not cold, to the body, and if possible put an ice pack on the head. If the hog or hogs are not down and you can give them access to water, allow them to use it as they will not injure themselves.

Blind Staggers

Blind staggers is a sympton of disease usually of the brain. It is sometimes caused by a parasite which has become embedded in the brain. It may result from chronic indigestion.

SYMPTOMS.

The animal suffers from attacks of blindness, jerks its head upward, turns in a circle, running and falling on the side or rolling over and over.

TREATMENT.

Hogs having the blind staggers become unthrifty. The treatment is the same as the disease of which it is a symptom. The bowels should be kept loose. If the attacks occur often it is best to kill the animal.

Fits or Epilepsy

This disease may result from an injury to the brain

or spinal cord. Worms are perhaps the most common cause of spasms in young pigs.

SYMPTOMS.

The convulsive movements usually begin in the muscles of the head and legs. At first there is a jerking of the muscles of the face, clamping of the jaws and an unsteady walk. Suddenly the animal falls, the head is thrown back, the legs stick out, saliva runs from the mouth, and urine is passed. Breathing is difficult.

TREATMENT.

Throw cold water on the animal's head or immerse the body in warm water.

Inflammation of the Udder

This is caused by not removing all of the milk from the udder. It may happen when a sow has lost part of her litter, or when a teat is obstructed, or from an injury, or infection by germs.

TREATMENT.

Milking the sow's udder two or three times a day will usually bring relief.

A physic should be given every other day and a sloppy diet fed. If the inflammation is severe a hot water pack or cloths wrung out of hot water may be applied.

Piles

This trouble is not uncommon among growing pigs. It is often caused by pigs having access to cinder piles, soft coal, etc. It may be brought about by constipation or diarrhoea.

SYMPTOMS.

Only a small part of the mucous membrane may appear. In some cases a tumor which is round, red and painful is present. It may swell and finally become dry and cracked.

TREATMENT.

Remove the cause, taking soft coal, cinders, etc., away. Give a laxative. Vaseline, lard or anything which will be healing to the affected part should be applied.

Other Diseases

There are various other diseases which occur very seldom, as of the urinary organs, or spleen, or heart, whose symptoms are so obscure that it is not considered practical to treat them in a work of this kind.

Use MoorMan's Mineral Mixture right in self-feeders and constipation will be taken care of properly.

PART FOUR

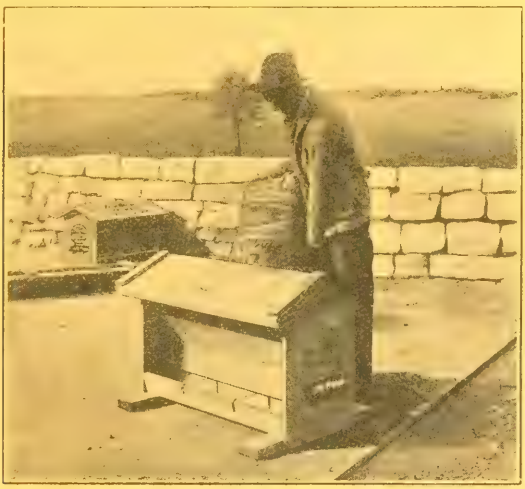
INSTRUCTIONS

For Using MoorMan's Mineral Mixture

Before Beginning to Use MoorMan's Mineral Mixture, Remove all Salt, Ashes, Coal and Charcoal. This is Very Important.

Hogs Will Eat Less of MoorMan's Mineral Mixture and Do Better on it if it is Kept Handy Where They Can Taste it Several Times During the Day, than if They are Only Allowed to Get to it Occasionally. For this Reason Put Your Feeders on or Near the Feeding Place or Some Other Place Used by Them Several Times During the Day.

Unless Your Hogs are About Ready for the Market It Will Pay You to Give Them a Force-feed; instructions for Which are Found on Page 95.



When You First Begin to Use MoorMan's Mineral Mixture Put One-fourth of a Pound Per Hog in Your Feeders. After That Keep Plenty in the Feeders at All Times. This is the Most Economical Way to Use MoorMan's Mineral Mixture. It will Cost You Less in the Long Run to Keep Plenty in the Feeders at All Times. They Actually Eat Less Than When Used Periodically.

Keep All Cobs and Sticks Removed From the Troughs of the Feeders

Occasionally Oil the Hinges to Keep Them From Rusting and Sticking

FORCE-FEED FIRST

By "Force-feed" we mean that hogs are to be forced to eat MoorMan's Mineral Mixture or a combination of MoorMan's Mineral Mixture and Worm Expeller together with their feed for one or more feeds.

If you have never used MoorMan's Mineral Mixture or if you have been using it and your feeders have been empty two or three weeks, the first thing you should do by all means is to give your hogs a force-feed according to instructions below. This is always the first thing to do even though your hogs are apparently in prime condition. This will give your hogs a good start, making them begin to do better at once.

CONSTIPATION IS THE HOG'S WORST ENEMY—FIGHT IT.

To be healthy, all hogs' bowels must move freely and the droppings should be soft enough to mash out on the ground when it falls. Use MoorMan's Mineral Mixture in self-feeders constantly and this trouble will be taken care of.

FORCE-FEED No. 1

Give all Wormy, Constipated and Unthrifty Hogs and Pigs Just Weaned the Following Treatment

Keep all feed, including grass, away from all hogs for from 24 to 36 hours. They should be put in a lot or

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pen, not a pasture. During this time put enough of MoorMan's Mineral Mixture in the drinking water to give each ten head about one quart in a day. Separate the larger ones from the smaller ones. Feed each group separately. Provide plenty of trough space for all hogs.

The following table shows you exactly the amount of feed, worm expeller and mineral mixture to be given ten head of hogs of any and all sizes at one feed. After hogs have been kept off feed for 24 to 36 hours, give three feeds of the amounts shown below. Mix thoroughly with feed. Give one in the morning, one at noon and another at night.

ONE FEED for 10 head of hogs weight as below	Amount of MoorMan's Mineral Mixture to be used	Amount of MoorMan's Hog Worm Expeller to be used.	Amount of soaked oats or mill feed to be used. (If shelled corn is used give only one-half this quantity.)
About 40 lbs.	1/4 qt.	1/4 qt.	1 gal.
About 60 lbs.	1/3 qt.	1/3 qt.	1½ gal.
About 90 lbs.	1/2 qt.	1/2 qt.	2 gal.
About 125 lbs.	3/4 qt.	3/4 qt.	2 gal.
About 165 lbs. or over.	3/4 qt.	1 qt.	2½ gal.

After giving a feed as above, morning, noon and night, follow the next morning by giving from one to two quarts of MoorMan's Mineral Mixture depending upon the size of hogs, to each ten head mixed with the amount of feed used in one of the three feeds the day before.

Give no other feed during the day than that which you give with the Mineral Mixture.

Never use sweet milk as a feed in force feeding, Slop may be used instead of the feed shown. Soaked oats are preferable and should be given with a small amount of shorts. Always dampen or soak any feed be-

fore putting the mineral mixture with it. **ALWAYS SOAK OATS** when given to pigs or shoats.

If your hogs are so badly constipated as to not be thoroughly loosened by this treatment, repeat same the next day and increase amount of MoorMan's Mineral Mixture and Worm Expeller. In extreme cases, the amount may be doubled. Even if the bowels are loosened but the hogs do not show signs of decided improvement or the worms expelled the same treatment may be repeated in ten days or two weeks.

Put the hogs back on their full feed gradually.

Never force-feed pregnant sows or suckling pigs.

Always follow a "force-feed" by immediately putting MoorMan's Mineral Mixture before all hogs in feeders exactly as we suggest in our instructions for using it in feeders.

FORCE-FEED No. 2.

For many years some of the biggest users of MoorMan's Mineral Mitxure have depended upon giving it alone in the form of a force-feed as a worm expeller for constipation and as an aid in straightening out unthrifty hogs.

The following table will show you the quantity of MoorMan's Mineral Mixture that should be used when it is given alone for **TEN HEAD** of hogs of any and all sizes. This should be repeated **TWO** or **THREE** times about **TWELVE** hours apart.

We also strongly urge giving this treatment to hogs in apparently prime condition before the mineral mixture is put before them in feeders unless they are given "force-feed" No 1, or unless they are hogs about ready for the market and are not sick.

One feed for 10 head, weight as below	Amount of MoorMan's Mineral Mixture to be used	Amount of soaked oats or mill feed to be used. (If shelled corn is used give only one-half this quantity)
About 40 lbs.	½ qt.	1 gal.
About 60 lbs.	¾ qt.	1½ gal.
About 90 lbs.	I qt.	2 gal.
About 125 lbs.	1½ qt.	2 gal.
About 165 lbs. or over	2 qt.	2½ gal.

Give no other feed during the day than that which is given with the mineral mixture. Put all hogs back on feed gradually.

Always follow any "force-feed" by putting MoorMan's Mineral Mixture before all hogs in self feeders exactly according to the following instructions.

HOW TO USE MOORMAN'S MINERAL MIXTURE IN SELF-FEEDERS.

Always begin immediately to use MoorMan's Mineral Mixture in self-feeders after giving any kind of a "force-feed."

Remove all salt, ashes, coal or charcoal from the lot, pen or field they are using. Measure out a half gallon of MoorMan's Mineral Mixture to every twelve good-sized hogs. If they are young pigs, weighing about 30 lbs., give one-half to two-thirds this amount. It is preferable that this quantity of mineral mixture be put in troughs and in the troughs of MoorMan's Mineral Mixture Self-feeders. If troughs are not available, put in small piles on the feeding place. Do not put it on the ground. If you have no troughs or feeding place, then put all of it in the feeder or feeders.

If the hogs eat just enough of the mineral mixture to keep their bowels in a good condition, then fill the feeder or feeders and keep the mixture in the feeders

every single day. Your guide in using MoorMan's Mineral Mixture is to make sure that the hog's bowels are in perfect condition. The bowels should move freely and the droppings should be soft enough to easily mash out on the ground as it falls. The several ingredients in the mineral mixture are so proportioned as to give the hogs the right amount of each, when he gets enouh of the Mineral Mixture to keep his bowels in this condition.

In some very few extreme cases, when hogs have not been used to a mineral mixture such as ours, they may at first eat more than is necessary. In this case, continue to put a small amount each day or two in troughs or in small piles on the feeding place so all can get at it and get used to it. Then when they have become accustomed to it, keep it in feeders constantly. Place the feeder or feeders on or near the feeding place or near their watering place.

When hogs do not eat MoorMan's Mineral Mixture readily it is because they are not used to it. Make sure all salt, ashes, coal and charcoal have been removed. Also that they do not have access to tankage in a separate feeder. If they do not then begin eating it at once, put some in piles on the feeding place or in troughs until they have gotten a taste and then let them run to it in self-feeders.

The most inexpensive way of using MoorMan's Mineral Mixture is to keep it in self-feeders before them every single day. When fed periodially hogs will eat more of it than they will when it is kept in feeders before them all the time.

When you feed tankage mix one part MoorMan's Mineral Mixture with three parts tankage. Do not try to use the mineral mixture in a separate feeder.

TREATMENT FOR SICK HOGS.

For Cholera symptoms, see page 49. In case of Cholera, swine plague or any other contagious, infectious disease, call in your local veterinarian.

Entire herds of hogs or parts of herds frequently get sick and no one seems to be able to tell what the trouble is. It may be the result of a sudden binding up of the bowels or any one of a half dozen other causes. When hogs get in this shape and do not show positive signs of cholera, hemorrhagic septicaemia or swine plague, give them the following treatment:

This treatment is for sick hogs that do not have the hog cholera, swine plague or hemorrhagic septicaemia. If some few of them should have either one of these diseases, especially cholera, the physic resulting from the following treatment may cause extra sickness or even death in a few cases, but these hogs would have died anyway and would not have responded to serum treatment, consequently, there is no loss as a result of this treatment.

Remove all well hogs to clean, disinfected quarters, which have not been used by the sick hogs. Before putting them in this pen, lot or field, crowd them into a small pen, the floor of which is covered with straw, and thoroughly soak hogs and straw with MoorMan's Stock Dip and Disinfectant, mixed one part Dip to 50 parts

If you ever want service in connection with the use of MoorMan's Mineral Mixture, wire, phone or write the man in charge of your county or direct to the Company at Quincy, Ill.

water. Leave them in this close pen for an hour or two. This will disinfect their bodies. Watch them and if any fall, drag them to the open.

Keep all feed away from them for about 24 hours. Then give 2½ pounds, or more if hogs are very large, of MoorMan's Mineral Mixture mixed with a very small amount of swill, slop or ground feed to each ten head. Repeat this dose every six or twelve hours for as many as three feeds. This may make a few sick but will not injure any. Follow by using the Mineral Mixture in the feeder. Take about a week or ten days in putting them back on full feed.

Thoroughly soak the sick hogs with the same solution of MoorMan's Stock Dip and Disinfectant, and let them remain in the lot all the hogs were using. Give them exactly the same treatment that we advise giving the well hogs.

If any of the well hogs get sick, put them in with the sick ones. When the sick hogs get well, thoroughly disinfect them and put them in with the well hogs. It should take a week or ten days to get them back on full feed. Always burn any hogs that die.

The foregoing treatment has saved many thousands of hogs. It will not cure cholera, for MoorMan's Mineral Mixture is not a cholera cure. It simply proves that there are many other diseases besides cholera.

How to drench a hog. All sick hogs that refuse to eat should be drenched in the following manner: Hold each hog by the ears and raise its foreparts until it is forced to sit upright on the ground between your legs. Place a stick about two inches in diameter in the mouth and give MoorMan's Mineral Mixture mixed with liquid in a long-necked bottle. One quart of MoorMan's

Mineral Mixture should be mixed with one gallon of warm liquid and a quart of this preparation given to each hog. Do not force, or allow a hog to swallow while squealing. Repeat this dose every six to twelve hours until a thorough physic is effected.

Another good way to get the liquid down a hog is to pour it. Place a piece of rubber hose or the toe of an old shoe with a hole in it, in his mouth and then pour the liquid down through this improvised instrument.

LUNG TROUBLE.

In case of any kind of lung trouble, fasten all hogs in a close pen or stall, the floor of which is covered with straw. Make sure there are no drafts. Mix one part of MoorMan's Stock Dip and Disinfectant with 50 parts water, and soak the hogs and straw thoroughly. Be sure that you watch them closely for about an hour after you give this treatment. If any of them begin to weaken, remove them immediately. They should be made to walk about on the straw and breathe the odor of the disinfectant. This seems to bring immediate relief. Repeat the spraying about every six hours, watching them each time after spraying. Repeat this treatment until they are relieved.

Do not give them any feed, but give plenty of water. Put enough of MoorMan's Mineral Mixture in the water to give each ten head about a quart of the Mineral Mixture every day. This will keep the bowels perfectly loose. A marked improvement in their condition will be noticed at once. Do not permit them to chill.

Put them back on feed slowly, making sure that they have warm sleeping quarters and plenty of dry straw for bedding.

THUMPS.

Keep all hogs affected in a pen to themselves. Keep all feed away from them twenty-four hours and give two or three feeds, six or twelve hours apart, of two pounds of MoorMan's Mineral Mixture mixed with a small amount of dampened oats or mill feed to each ten head. Put them back on feed slowly, making sure that they get enough of MoorMan's Mineral Mixture through the feeder to keep their bowels perfectly loose.

YOUNG PIGS.

Let the pigs have the Mineral Mixture with their mother as early as they will eat anything. A week or ten days after they are weaned, give them the Worm Treatment found on page 95 under Force Feed No. 1. MoorMan's Mineral Mixture will not always prevent the accumulation of worms in pigs as the sweet milk obtained from the mother tends to counteract the worm expeller that is in the mineral mixture.

Following the Worm Treatment, allow them to continue to eat the Mineral Mixture out of the Feeder, and see that from the start they eat enough of the Mineral Mixture to keep their bowels open. Let this be your guide.

In force feeding small pigs, do not use oats unless well ground and thoroughly soaked.

When dealing with the Moorman Mfg. Co., you get two values—high-quality goods and satisfactory service.

BROOD SOWS.

About two weeks before brood sows are bred they should be given two light force feeds of MoorMan's Mineral Mixture as follows: Cause them to miss one feed, then give one pound of MoorMan's Mineral Mixture thoroughly mixed with dampened oats, slop or dampened mill feed to every ten head. Repeat this in from six to twelve hours. Then put MoorMan's Mineral Mixture before them in MoorMan's Mineral Mixture Self-feeder. See that they eat enough of the Mineral Mixture to keep their bowels open. This is to be your only guide. Keep the Mineral Mixture before them in this way throughout their state of pregnancy and until the pigs are weaned.

If sows are pregnant when you begin using MoorMan's Mineral Mixture get them used to it gradually. To start with give a quart of the Mineral Mixture to ten sows in troughs or in small piles on the feeding place. Do not put it on the ground. Repeat this for two or three days and if it seems to be all they want then put a few gallons in a feeder. If they seem to be satisfied by eating just enough to keep their bowels loose enough for the droppings to mash out on the ground when it falls then fill the feeder and continue to use the mineral mixture through the feeder making sure you never let it become empty.

If sows have an unnatural appetite and eat so much of MoorMan's Mineral Mixture as to cause the bowels to be kept too loose then continue to feed a quart a day in slop, swill or dry in a trough to each ten head.

Never give pregnant sows a force feed of MoorMan's Mineral Mixture.

WHITE SCOURS IN PIGS.

Clean out and disinfect the sleeping quarters. Provide plenty of dry bedding and make sure the floor of the bed is dry. Keep both the sows and pigs in the sunshine as much as possible.

TREATMENT FOR THE SOWS. Give ¾ of a quart of MoorMan's Mineral Mixture to the sows mixed with a small amount of feed or in slop or swill every night and morning for three or four days. Follow this by allowing them to have free access to the mineral mixture in the feeders.

TREATMENT FOR THE PIGS. If the foregoing treatment fails to check the scouring in the pigs in two or three days or if you see at the start it is a severe case then give each pig three drops of laudanum twice daily until relieved. This laudanum treatment should always be given in case of weaned or motherless pigs.

If MoorMan's Mineral Mixture is given to brood sows during and after pregnancy in feeders white scours will be prevented in nearly every case.

HOW TO USE MOORMAN'S MINERAL MIXTURE WITH TANKAGE.

Do not in any case attempt to feed tankage in one feeder and use MoorMan's Mineral Mixture in another at the same time. Mix the two in the proportion of one part Mineral Mixture to three parts tankage. If this is not the proper proportion to keep the bowels perfectly loose, then increase or decrease as is necessary. Let this be your guide.

HOW TO USE MOORMAN'S MINERAL MIXTURE IN SWILL OR SLOP.

If you are feeding swill or slop daily it provides a good way to use MoorMan's Mineral Mixture. Usually one-half gallon of the Mineral Mixture to fifty gallons of the liquid is the correct proportion. The exact quantity of the Mineral Mixture used, depends upon the size of the hogs being fed. Put in enough each day to keep their bowels perfectly loose. Let this be your guide.

BREAKING DOWN IN THE BACK.

(See complete discussion of this subject on pages 59 and 60.)

Give all hogs a good physic by mixing the Mineral Mixture with the food in quantities of ⅛ of a pound each to those weighing less than 100 pounds. To those weighing over 100 pounds give each ¼ of a pound. If they will not eat try giving ¼ of a pound to each hog mixed in the drinking water. If you are unable to get a physic in this way drench each hog that is down giving ¼ pound to each.

Keep the bowels perfectly loose for several days following this treatment by keeping the Mineral Mixture before them in the feeder or in the drinking water or in the feed.

HOW TO USE MOORMAN'S MINERAL MIXTURE BEFORE AND AFTER VACCINATION.

It is very important to use MoorMan's Mineral Mixture in connection with vaccinating hogs for two or three days before they are vaccinated. Be sure to let them have enough of the mineral mixture either in

their feed or in a feeder to keep their bowels perfectly loose. If you should find it hard to get them to eat enough of the mineral mixture to loosen their bowels perfectly, take them off of feed for twenty-four hours and thoroughly mix one quart and a half in some kind of ground feed for each ten head weighing 100 lbs. Reduce or increase the quantity according to the size of the hog. This dose may be repeated two or three times every twelve hours if it is necessary in order to loosen the bowels of all hogs.

After the vaccination, keep the Mineral Mixture before the hogs in feeders. Make sure they are getting enough of the Mineral Mixture to keep their bowels thoroughly loosened.

BLACK SCOURS IN PIGS.

Many of our representatives have reported cases of black scours in pigs. It sometimes appears after they have been weaned. At the first signs of this disease, take all corn away from the pigs and begin feeding them shorts or mill feed and put enough of MoorMan's Mineral Mixture in their feed or water to make their bowels perfectly loose. Make sure that all quarters are dry and clean. A few days or a week or two of this kind of feeding and treating usually straightens them out.

LEGAL WEIGHTS OF VARIOUS FARM PRODUCTS.

Minimum Weight by U. S. Statute.

	Pounds Per Bu.
Apples	48
Apples, dried	24
Barley	48
Beans, Castor	46
Beans, white	60
Bluegrass seed	14
Bran	20
Buckwheat	52
Clover seed	60
Coal	80
Corn, shelled	56
Corn, on the ear	70
Cornmeal	48
Flaxseed	56
Hair, plastering	8
Hemp seed	44
Hungarian grass seed	45
Lime	80
Malt	38
Millet seed	50
Oats	32
Onions	57
Peaches, dried	33
Peas	60
Peas, ground	42
Potatoes, Irish	60
Potatoes, sweet	55
Rye	56
Timothy seed	45
Turnips	55
Wheat	60

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